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DEPARTMENT OF COMMERCE AND LABOR

BUREAU OF THE CENSUS

S. N. D. NORTH, DIRECTOR.

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SPECIAL REPORTS

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# STREET AND ELECTRIC RAILWAYS

# 1902

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PREPARED UNDER THE SUPERVISION OF W. M. STEUART

CHIEF STATISTICIAN FOR MANUFACTURES

WASHINGTON

GOVERNMENT PRINTING OFFICE

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# LETTER OF TRANSMITTAL.

DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF THE CENSUS,
*Washington, D. C., September 1, 1904.*

SIR:

I have the honor to transmit herewith a report on the street and electric railways of the United States for the year ending June 30, 1902. This report has been prepared in the Bureau of the Census under the supervision of Mr. W. M. Steuart, chief statistician for manufactures, in accordance with the provisions of section 7 of the act of Congress of March 6, 1902.

The data were collected by the regular force of the office, the fieldwork being started on October 25, 1902. The results of the investigation were published on June 5, 1903, as Census Bulletin No. 3. Each railway company was called upon by a representative of the office, and all made returns, with the exception of a few named in the report.

The inquiries concerning the financial operations of street and electric railway companies were in conformity with a schedule devised by the Street Railway Accountants' Association of America. As a rule, the information called for in this schedule could be obtained from the books of the different companies, but in a few cases it was necessary to make estimates. The inquiries concerning the physical equipment of the roads were formulated after a conference with street railway officials and others familiar with the requirements of the industry. It is believed that they have resulted in securing information which is of particular interest. The statistics were tabulated, the results summarized, and the final tables prepared by the official clerical force. The text of the report has been prepared by Mr. T. Commerford Martin, of New York city, and Mr. E. Dana Durand, of the Bureau of Corporations of this Department, working in collaboration.

Very respectfully,

S. N. D. North

*Director.*

Hon. VICTOR H. METCALF,
*Secretary of Commerce and Labor.*

# STREET AND ELECTRIC RAILWAYS

## PART I

# STREET AND ELECTRIC RAILWAYS.

## PART I.

By EDWARD DANA DURAND, Expert Special Agent.

## CHAPTER I.

### SCOPE AND METHOD OF INVESTIGATION.

*Definition of street and electric railways.*—The statistics in this report cover all electric railways in the United States irrespective of their length or location and all street railways irrespective of their motive power. In the corresponding investigation at the census of 1890 the term "street railways" was used as defining the scope of the statistics. At that time practically all railways, except ordinary steam railways, could be correctly designated by this term, as they were confined mainly to urban districts and operated almost exclusively upon the public streets and roads. During the past few years there has been an extraordinary development of electric railways outside the limits of cities and villages, and a considerable proportion of these suburban and interurban lines are located on private rights of way and not on the public thoroughfares. Hence the more inclusive term "street and electric railways" has been adopted, as covering more adequately the scope of the present investigation. It includes all railways doing a public business except the ordinary steam lines, which report to the Interstate Commerce Commission.

The statistics, in fact, cover the electric business of two steam railways which have either placed electric cars upon part of their tracks in connection with steam trains or have equipped certain tracks exclusively for electric traction. This practice has been most extensively adopted by the New York, New Haven and Hartford Railroad Company. The Pennsylvania Railroad also operates an electric system in New Jersey in connection with the West Jersey and Seashore Railroad. The recent movement of the New York Central and Hudson River Railroad and the Pennsylvania Railroad in determining upon the installation of electric traction for all passenger trains entering their New York termini, together with other electric installations now contemplated by steam railroads, may mark the approach of a time when all steam lines will have introduced electric traction in connection with steam, or in place of it, and when it will not be possible to distinguish clearly between electric and steam railways. At present the distinction is still a fairly clear one, although the methods and service of some electric interurban lines already resemble those of the steam railways in many important respects.

The present report also includes eleven inclined planes operated separately from other railway systems. These, which for the most part use cable traction, are found in a few cities and towns where steep bluffs exist, notably in Pittsburg. They differ materially in their methods of operation from ordinary street railways. Their traffic is insignificant in comparison with the total for all street and electric railways.

*Period covered.*—The statistics, as a rule, cover the twelve months ending June 30, 1902, but in a considerable number of instances the reports are for the calendar year 1901 and in a few instances for the calendar year 1902 or for other periods of twelve months. Companies in operation during only part of the year are included, but not companies whose lines were under construction and not yet in operation. The number of companies reporting for only part of the year was 57 out of a total of 817 operating companies. This number includes a few companies which were actually in operation during the entire year but for which, on account of changes in ownership, only partial reports could be secured. These part-time railways, however, are in most instances much less important than a large proportion of those in operation throughout the entire census year, so that the inclusion of them does not materially affect the relations between the totals for the various items.

*Completeness of returns.*—In most instances the rail-

way companies replied in full to the inquiries in the schedule submitted by the Bureau of the Census. The officials of every company were visited by the special agents of the Bureau, who undertook to secure uniformity in the returns. In some instances the agents found it necessary to make estimates, in conjunction with the officials of the railways, for certain data of which accurate records had not been kept. Most companies, however, and particularly the important ones, kept such records as to permit precise replies. In a few instances only have figures not reported by the companies been supplied by office estimates. Those cases in which information is wholly omitted or in which it has been supplied by estimates made by the Bureau are indicated in connection with the detailed presentation of the statistics.

In the appendix will be found a copy of the schedule employed in this investigation and of the instructions to special agents conducting the fieldwork.

*Basis of classification of companies.*—The results of street railway operation differ so greatly under different conditions that it becomes necessary, in the presentation of summaries, to group the companies in such a way as to bring together, so far as possible, those which operate under similar conditions. For this purpose two classifications have been made. The first is based chiefly on the kind of power used, one of the groups being further subdivided according to certain operating conditions. The second classification is based upon the distinction between urban and interurban railways, and the urban railways are further divided upon the basis of the population of the urban center served. These classified summaries are the more essential for the presentation of financial data regarding street railways, since these can not be published for individual companies, as is done with the items concerning physical equipment and traffic.

*Classification according to power used.*—The first method of classification divides the companies into the following groups and subgroups:

1. Electric surface railways.
   - *a.* Without commercial lighting.
   - *b.* With commercial lighting.
   - *c.* Part time.
2. Animal power railways.
3. Steam and electric elevated railways.
4. Cable railways, surface and inclined planes.
5. Steam surface railways.

The companies reporting for only part of the year all operate electric surface lines. The separation of these companies from the other electric surface lines makes it possible to observe more precisely the results of operation under normal conditions.

The separation of the first two subgroups of group 1 is based upon the obvious fact that the running of a lighting plant in connection with an electric railway business must materially affect the operating results for the railway. Moreover, it is impossible in most of such cases to separate satisfactorily the capital invested or the current expenses for the lighting business from those for the street railway business, so that the returns must necessarily cover both branches. There is no sharp line of demarcation between subgroups *a* and *b*, a large proportion of electric railway companies receiving some income from the sale of light and power. The aim has been to include under subgroup 1 *b* only companies which operate distinctly commercial light or power plants. Most of these companies presented to the Bureau of the Census supplementary schedules regarding the equipment and operations of these auxiliary plants, as far as it was possible to make a segregation, and these supplementary data are included in the present report. A company which sells, incidentally, a small amount of current, especially if the current is delivered to the consumer directly at the dynamo, is placed in subgroup 1 *a*.

A considerable number of street railway companies under 1 *a* and a few under 1 *b*, while operating primarily electric surface lines, have also some trackage operated by cable or animal power or some elevated trackage. Among leading instances of this class may be mentioned the Interurban Street Railway Company, of New York city, which operates a large number of horse cars, the passengers carried constituting a very large proportion of the total horse-car traffic of the United States. In Chicago and San Francisco extensive cable lines are operated by companies which are now primarily electric in their equipment, and the elevated systems in Brooklyn and Boston are operated by the companies which run the surface lines of those cities. In all such instances it is impossible to divide the statistics of the company and apportion them between different kinds of traction. The amount of traffic carried by predominantly electric surface railways on horse, cable, or elevated cars is, however, but a small fraction, probably not more than 2 or 3 per cent, of their aggregate traffic, so that the significance of the totals for the group is not materially affected. On the other hand, the statistics presented for elevated railways, while they do not cover the entire business of this description, doubtless show the typical results of operation. The number of companies operating cable railways predominantly (aside from inclined planes) is now only 3, and the number of exclusively steam street railways is only 3, so that the statistics of these two groups are less significant than those of the larger groups.

*Classification according to population.*—The second method of classification divides street and interurban railway companies into the following groups:

1. Railways in urban centers of 500,000 population and over.
2. Railways in urban centers of 100,000, but under 500,000 population.
3. Railways in urban centers of 25,000, but under 100,000 population.

4. Railways in urban centers of less than 25,000 population.

5. Fast, long interurban railways.

6. Miscellaneous interurban railways.

Statistics grouped into the 6 classes above named are presented for all companies, whatever the power used, and also separately for those full-time companies which operate electric surface railways without lighting plants.

This classification of companies according to population involves no little difficulty. In the first place the more important street railways are no longer confined, as they were formerly, to a single municipality. They extend into the suburbs and adjacent rural districts, and often to cities and towns at a considerable distance. In determining the area to be credited to a given urban center, the rule followed has been to include all the municipalities reached by the lines of the company, or companies, which serve the city that constitutes the leading component in that center. The statistics of minor railways serving any part of the area thus defined have been added to those of the more central systems, and the population of any additional localities reached by these minor companies. The population of strictly rural areas, through which primarily urban street railway systems pass, has necessarily been disregarded in discussing urban centers, since there is no way of ascertaining what proportion of the inhabitants of such areas are actually within reach of street railway facilities.

Pittsburg and the neighboring cities and towns furnish a striking illustration of the difficulty of ascertaining the population served by a railway company. Of the 469.47 miles of track reported by the 8 Pittsburg companies, 188.19 miles lie entirely outside of the limits of any municipality. Nevertheless, the traffic is so largely carried on within city limits that these companies have been classed as urban rather than interurban. A somewhat similar condition exists in Buffalo, N. Y., and its vicinity, while the railways serving Detroit, Mich., Fall River, Mass., Canton and Akron, Ohio, and several other important cities are so largely interurban that their statistics have been excluded from the urban groups. Not only are certain predominantly urban companies thus engaged to some extent in interurban traffic, but all companies which are predominantly interurban in character likewise carry passengers wholly within city limits and, in many instances, the proportion of passengers thus carried is large.

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When, therefore, the attempt is made to compare the population of a given urban center with the number of passengers carried in that center, the result is only approximate, since it is impossible to distinguish between the different classes of traffic carried by a single street railway company. Nevertheless, in most large cities the margin of error arising from these complications is not very great. The totals for the four groups of cities adopted in this report show fairly well the true conditions of urban street railway operation, since all companies whose business is to a large extent interurban have been placed in the fifth and sixth groups.

These considerations point clearly to the heterogeneous character of many of the railways which are classed as interurban. A large part of the traffic of so-called interurban railways is really intraurban. As a general rule all companies which have more than half of their trackage outside of municipal limits have been considered interurban in the present investigation. For the purpose of showing the operating results of the more typical modern interurban railways, 55 companies have been selected, which may be fairly described by the term fast, long interurban lines. No company is included in this group which reported less than 15 miles of single track, or which had more than one-third of its trackage within municipal limits, or which operated cars at a maximum speed of less than 20 miles per hour. The distinction between such interurban railways and those in the miscellaneous group is necessarily more or less arbitrary. Several of the companies in the miscellaneous group operated at least part of their trackage in such a way as to conform to the criteria indicated for fast, long interurban lines. This is notably the case with the Detroit United Railway Company, which yet carries the greater proportion of its passengers wholly within the limits of the city of Detroit, thus rendering the statistics of its total business quite incomparable with those of more strictly interurban lines. Group 6, the miscellaneous interurban class, includes on the one hand such cases as the Detroit United Railway Company, and the Boston and Northern Street Railway Company which serves several of the large cities of eastern Massachusetts, and, on the other hand, many small railways connecting mere villages, or operated in connection with summer resorts. It thus represents such widely varying conditions that the totals are less significant than in the case of any of the other groups.

# CHAPTER II.

## COMPARISON WITH CENSUS OF 1890.

*Difficulty of comparison.*—Comparisons between the statistics of street railways for 1890 and 1902 must be made with great caution. In 1890 only 706 out of the 789 street railways in the country made reports to the Census Office. The figures of trackage, cost of construction, number of cars, number of employees, and number of passengers for the remaining 83 companies were either obtained from outside sources or were estimated. The figures thus secured from sources other than certified returns constitute from 4.20 to 10.36 per cent of the totals for the respective items mentioned. The returns of earnings and expenditures and of car mileage were incomplete, even for many of the companies which reported fully other statistics; but these items were not supplemented by estimates, so that the figures given as totals represent from 10 to 20 per cent less than the actual totals for all companies. The degree of error in the statistics of 1890 is more fully discussed in connection with the analysis of the data on each subject. The returns for 1902 were much more nearly complete, as all but two companies covered by the statistics furnished certified returns, and in most cases all inquiries in the schedule were answered.

*Comparative summary.*—Table 1 contains a summary of the more comparable statistics for all street railways at the censuses of 1890 and 1902, together with the percentages of increase.

TABLE 1.—*Comparative summary: 1902 and 1890.*

| | 1902 | 1890 | Percentage of increase. |
|---|---|---|---|
| Number of companies, operating and lessor | 987 | 789 | 25.1 |
| Length of line, miles[1] | 16,651.58 | 5,783.47 | 187.9 |
| Length of track, miles[1] | 22,576.99 | 8,123.02 | 177.9 |
| Cost of construction and equipment | $2,167,634,077 | $389,357,289 | 456.7 |
| Number of employees | 140,769 | 70,764 | 98.9 |
| Number of passenger cars | 60,290 | 32,505 | 85.5 |
| Number of fare passengers | 4,774,211,904 | 2,023,010,202 | 136.0 |
| Fare passengers per mile of track | [2]212,217 | 249,047 | [3]14.8 |
| Ratio of operating expenses to operating earnings for companies reporting, per cent | 57.5 | 68.4 | ..... |

[1] By "length of line," as used throughout this report, is meant length of first main track or of roadbed. By "length of track" is meant total length of all trackage, including sidings. Thus, in the case of a double track road, "length of track" would be double "length of line."
[2] Exclusive of trackage of two railways carrying freight only.
[3] Decrease.

The 1902 figures include, for cost of construction and equipment, 967 out of 987 operating and lessor companies, while of the 817 operating companies, 797 reported the number of employees, 811 the number of fare passengers, and 799 earnings and expenses. The figures for 1890, except as to ratio of expenses to earnings, cover all companies, though some of them are based partly on estimates.

The contributions of the different sections of the country to the development of the street railway industry are indicated in the following table:

TABLE 2.—COMPARATIVE SUMMARY, BY GEOGRAPHIC DIVISIONS: 1902 AND 1890.

| DIVISION. | Year. | Length of track, miles. | LENGTH OF LINE, MILES. | | | | | Number of passenger cars. | Number of fare passengers carried. | Total cost. | Number of employees. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | Electric. | Animal. | Cable. | Steam. | | | | |
| United States | 1902 | 22,576.99 | 16,651.58 | 16,230.62 | 195.21 | 113.93 | 111.82 | 60,290 | [1] 4,774,211,904 | [1] $2,167,634,077 | [1] 140,769 |
| | 1890 | 8,123.02 | 5,783.47 | 914.25 | 4,061.94 | 283.22 | 524.06 | 32,505 | 2,023,010,202 | 389,357,289 | 70,764 |
| Increase | | 14,453.97 | 10,868.11 | 15,316.37 | [2] 3,866.73 | [2] 169.29 | [2] 412.24 | 27,785 | 2,751,201,702 | 1,778,276,788 | 70,005 |
| Percentage of increase | | 177.9 | 187.9 | 1,675.3 | [2] 95.2 | [2] 59.8 | [2] 78.7 | 85.5 | 136.0 | 456.7 | 98.9 |
| North Atlantic | 1902 | 10,164.89 | 7,702.22 | 7,579.01 | 66.02 | 5.50 | 51.69 | 31,319 | 2,618,528,979 | 1,088,932,237 | 75,928 |
| | 1890 | 2,951.85 | 2,063.94 | 278.22 | 1,658.51 | 47.27 | 84.94 | 14,651 | 1,141,187,460 | 199,404,200 | 37,412 |
| Increase | | 7,213.04 | 5,638.28 | 7,305.79 | [2] 1,592.49 | [2] 41.77 | [2] 33.25 | 16,668 | 1,477,341,519 | 889,528,037 | 38,516 |
| Percentage of increase | | 244.4 | 273.2 | 2,674.0 | [2] 96.0 | [2] 88.4 | [2] 39.1 | 113.8 | 129.5 | 446.1 | 103.0 |
| South Atlantic | 1902 | 1,670.15 | 1,195.29 | 1,182.04 | 13.25 | ..... | ..... | 4,290 | 297,198,541 | 162,507,589 | 9,839 |
| | 1890 | 611.96 | 465.93 | 83.58 | 307.49 | 3.70 | 71.16 | 1,702 | 101,647,174 | 16,125,671 | 4,139 |
| Increase | | 1,058.19 | 729.36 | 1,098.46 | [2] 294.24 | [2] 3.70 | [2] 71.16 | 2,588 | 195,551,367 | 146,381,918 | 5,700 |
| Percentage of increase | | 172.9 | 156.5 | 1,314.3 | [2] 95.7 | [2] 100.0 | [2] 100.0 | 152.1 | 192.4 | 907.8 | 137.7 |
| North Central | 1902 | 7,815.32 | 5,631.59 | 5,524.28 | 50.91 | 56.40 | ..... | 18,643 | 1,344,000,951 | 705,553,933 | 39,405 |
| | 1890 | 2,753.57 | 1,867.93 | 384.56 | 1,229.90 | 129.69 | 123.78 | 11,335 | 538,309,887 | 110,741,609 | 20,314 |
| Increase | | 5,061.75 | 3,763.66 | 5,139.72 | [2] 1,178.99 | [2] 73.29 | [2] 123.78 | 7,308 | 805,691,064 | 594,812,324 | 19,091 |
| Percentage of increase | | 183.8 | 201.5 | 1,336.5 | [2] 95.9 | [2] 56.5 | [2] 100.0 | 64.5 | 149.7 | 537.1 | 94.0 |
| South Central | 1902 | 1,322.45 | 1,007.10 | 959.45 | 17.75 | .90 | 29.00 | 3,007 | 210,103,861 | 87,294,862 | 6,731 |
| | 1890 | 968.67 | 773.05 | 81.63 | 559.83 | ..... | 131.59 | 2,342 | 98,005,026 | 24,602,138 | 3,830 |
| Increase | | 353.78 | 234.05 | 877.82 | [2] 542.08 | .90 | [2] 102.59 | 665 | 112,098,835 | 62,692,724 | 2,901 |
| Percentage of increase | | 36.5 | 30.3 | 1,075.4 | [2] 96.8 | ..... | [2] 78.0 | 28.4 | 114.4 | 254.8 | 75.7 |
| Western | 1902 | 1,604.18 | 1,115.38 | 985.84 | 47.28 | 51.13 | 31.13 | 3,031 | 304,379,572 | 123,345,456 | 8,866 |
| | 1890 | 836.97 | 612.62 | 91.26 | 306.21 | 102.56 | 112.59 | 2,475 | 143,860,655 | 38,483,671 | 5,069 |
| Increase | | 767.21 | 502.76 | 894.58 | [2] 258.93 | [2] 51.43 | [2] 81.46 | 556 | 160,518,917 | 84,861,785 | 3,797 |
| Percentage of increase | | 91.7 | 82.1 | 980.2 | [2] 84.6 | [2] 50.1 | [2] 72.4 | 22.5 | 111.6 | 220.5 | 74.9 |

[1] Of the 987 companies, 967 reported the cost of construction and equipment; while of the 817 operating companies, 797 reported the number of employees and 811 the number of fare passengers carried.
[2] Decrease.

*Number of companies.*—There were 789 operating and lessor companies in existence at the census of 1890 and 987 in 1902. Of the 706 companies which actually reported in 1890, 681 were in independent operation and only 25 were leased, 5 of the latter reporting their operations separately. At the present time the method of combination by lease, which usually means virtually the absorption of the lessor company, has been extensively adopted. Only 817 of the companies reporting in 1902 were operating companies. Moreover, in several cases, these include companies which were really, by ownership or lease, controlled by other companies, although they made distinct reports to the present census. The number of companies having actual independence of control is, therefore, even smaller than appears from the returns. For instance, 11 companies in the District of Columbia and the adjacent parts of Maryland made separate returns, although all are controlled by a single company.

The small increase in the number of operating companies since 1890 is explained by the fact that railways formerly separate have been merged into systems, a process which is more fully described in Part I, Chapter VIII. As a matter of fact, a considerable number of these merged railways, aside from those held under lease, still continue to maintain a separate corporate existence, being controlled by ownership of their stock, so that the aggregate number of actual street railway corporations at present is considerably greater than appears from the statistics. Where, however, these merged companies have ceased to report operations separately they have not been counted.

Although some railways in small towns, especially in Western states where they were constructed in connection with temporary "booms," have ceased to operate since 1890, a much larger number of new street railways have been constructed. It is impossible, however, to determine by the dates of the charters of the present companies the number of railways established since 1890, since in many cases the companies now in operation are merely reorganizations or combinations of earlier companies.

The combination of street railways has greatly increased the size of many operating railway companies. Moreover, many railways which have not undergone consolidation have extended their tracks very materially since 1890. The difference in the importance of the average railway company at the two census periods may be seen from Table 3, which is based on the number of operating companies.

TABLE 3.—*Comparative size of operating companies: 1902 and 1890.*[1]

| | AVERAGE PER OPERATING COMPANY. | |
|---|---|---|
| | 1902 | 1890 |
| Length of track, miles | 27.63 | 10.56 |
| Number of passenger cars | 74 | 42 |
| Number of fare passengers carried | 5,886,821 | 2,630,702 |
| Number of employees | 177 | 92 |

[1] The number of operating companies in 1890 was 769 and this number is used in all the computations. In 1902, 817 companies reported trackage and cars, 811 fare passengers, and 797 number of employees, and these numbers have been used respectively.

These figures indicate that the average operating company in 1902 was more than twice as important in both trackage and traffic as the average operating company in 1890.

*Trackage and motive power.*—As will be seen from Table 1 the increase in the length of line of street railways in 1902, as compared with 1890, is 10,868.11 miles, or 187.9 per cent, and the increase in the length of track is 14,453.97 miles, or 177.9 per cent. By length of line is meant the length of the first main track exclusive of second track and sidings. The length of all track is a more valuable basis for comparison. Double tracks for cars operating in opposite directions cost nearly twice as much, and have nearly twice as great maximum traffic capacity, as a single track with short sidings for cars to pass. In some cities the track used by cars running in one direction occupies one street, while the corresponding track for cars in the opposite direction occupies a parallel street. This is particularly true of Philadelphia, because of its narrow streets. The length of line in such case is double that which would be reported if the two tracks had been laid side by side in a single street, yet the traffic capacity is practically the same.

The fact that the length of line has increased more rapidly than the length of track is due to the recent large extension of street railways in small towns and rural districts. Railways so situated have usually only a single track, while the dense traffic of the large cities, to which the street railways of 1890 were mostly confined, requires double tracks in most instances. In 1880 the length of line of street railways in the United States was 2,050.16 miles, or a little less than one-eighth as great as in 1902.

Table 2 shows that the increase in trackage since 1890 has been largest, 244.4 per cent, in the North Atlantic states, notwithstanding the comparatively high development of street railways in the cities of that division in 1890. A great part of this increase is due to the

extensive construction of interurban railways. The ratio of increase in trackage is least in the South Central states, where the railways are, for the most part, still confined to a few leading cities.

The most striking feature of the street railway development since 1890 has been the replacement of other methods of traction by electricity. The great majority of the companies which used other power in 1890 have since changed to electric power, while practically no new street railways have been constructed which use any other form of traction. Even since the time covered by the present investigation this change has rapidly progressed. The elevated railways in New York city, which used steam up to 1902 and during a portion of that year, and a part of the trackage operated by animal power in that city, have since been equipped for electric traction.

The following table shows the number of miles of track in the United States in 1890 and 1902, grouped according to the character of the motive power. Elevated railways are not separately presented, as in later tables, since this distinction was not made in the statistics of track given by the census of 1890; their trackage is included with that operated by steam and electricity, respectively.

TABLE 4.—*Comparative summary of track mileage, classified according to motive power: 1902 and 1890.*

| CHARACTER OF POWER. | Miles of track, 1902. | Miles of track, 1890. | Percentage of increase. |
|---|---|---|---|
| United States | 22,576.99 | 8,123.02 | 177.9 |
| Electric | [1]21,907.59 | 1,261.97 | 1,636.0 |
| Animal | 259.10 | 5,661.44 | [2]95.4 |
| Cable | 240.69 | 488.31 | [2]50.7 |
| Steam | 169.61 | 711.30 | [2]76.2 |

[1] Includes 6.06 miles operated by compressed air.
[2] Decrease.

In 1890 the trackage operated by electric power was less than one-sixth of the total, while in 1902 it had increased to 97 per cent, the track mileage thus operated increasing from 1,261.97 miles to 21,907.59 miles. In 1890 horses or mules were used to haul cars on more than two-thirds of the total track, but in 1902 while 67 companies still used animal power wholly or in part only on 1.1 per cent of the trackage was such power used. The mileage operated by cable decreased 50.7 per cent and that operated by steam 76.2 per cent. It is understood that since the date of the census inquiry the small amount of trackage operated by compressed air has been equipped with electric power.

It is not possible to make an exact comparison of the number of companies using each class of power in 1890 and 1902, as in the former year many companies did not submit individual reports. Of the 686 operating companies which did report in 1890 (counting 5 lessor companies which operated separately), 126 used electric power wholly or in part, 506 animal power, 55 cable power, and 74 steam power. Of the 817 operating companies in 1902, 747 used electric power wholly or in part, 67 animal power, 26 cable power (including inclined planes), and 9 steam power.

*Cost of construction.*—For reasons more fully set forth on page 47, the figures for cost of construction as returned by the street railway companies in 1890 can not be considered as in any sense representing the actual amount of cash put into the physical properties. This is even more the case in 1902. Aside from the fact that part of the cost in 1890 was based on census estimates only, the cost of construction, as reported by the companies themselves at both censuses, represented, in many instances, merely the amount of cash or the amount of securities which had been paid for the purchase of a railway or railways already long in operation. The purchase price in such a case is naturally based on earning capacity and not on the original cost of construction or the cost of duplication. The apparent percentage of increase in this item since 1890, 456.7 per cent, can therefore be considered as of only slight significance.

*Number of employees.*—The reported number of salaried employees and wage-earners on street and electric railways (4.23 per cent of the number in 1890 being estimated or obtained from indirect sources) increased 98.9 per cent during the interval between the two census investigations. The actual increase was probably somewhat greater since 20 companies, with a trackage of 417.03 miles, did not report this item in 1902. Moreover, at the census of 1890, report was made of the average number of employees for the time during which each street railway was in operation. Since at that time there were many roads which had only recently begun operation and which reported for less than an entire year, the total number of employees reported in 1890 was somewhat greater than the number which would have been necessary to conduct an equal amount of business if distributed throughout an entire year in every case. In the present investigation, as more fully explained in Twelfth Census, Volume VII, Manufactures, page lxi, the effort has been made to ascertain what would be the average number of employees, on the assumption of twelve months of operation.

The returns indicate that the number of employees at present bears a considerably smaller ratio to the number of passengers carried than was the case in 1890, and this is doubtless true, though the disparity is exaggerated by the statistics.

*Number of cars.*—The necessary limit to the size of cars when horses were employed has been greatly extended by the introduction of electricity. The consequent increase in the average size of cars is presumably one cause of the fact that the total number of passenger cars was only 85.5 per cent greater in 1902 than in 1890, despite an increase of 136.0 per cent in the number of passengers carried. The proportion of

passenger mileage (by which is meant the total distance covered by all passengers) to the number of cars owned has increased in still larger measure. In Part II, Chapter III, will be found detailed information regarding the development of cars and the size of the cars at present accepted as standards in the leading cities.

*Traffic.*—The number of fare passengers reported for street and electric railways rose from 2,023,010,202 in 1890 to 4,774,211,904 in 1902. In 1890, 5.13 per cent of the passengers were estimated or ascertained from unofficial sources, while the figures for 1902 cover 811 out of 817 operating companies.

No separate return of transfer passengers was made in 1890 and, generally speaking, the statistics were based on the number of fare passengers although, in some instances, apparently, the total of fare and transfer passengers was reported and included in the United States total. As a matter of fact, the total number of transfer passengers in 1890 is known to have been comparatively small, while in 1902 the number of passengers carried on free transfers was no less than 1,062,403,392. Where, as in Philadelphia, a charge is made for a transfer, the passenger is counted as a fare passenger.

The actual increase in the number of fare passengers was slightly greater than appears from the figures, since the statistics of 1890, even those based on certified returns, included estimates on the basis of twelve months of operation for those roads operating less than the entire year, while for part-time railways at the present census only the actual number of passengers carried is stated.

At first glance it seems surprising that the average number of fare passengers carried per mile of single track should be considerably less in 1902 than in 1890, the figures being, respectively, 212,217 and 249,047. If, however, the number of transfer passengers could be added to the number of fare passengers, the density of traffic per mile of track would probably appear somewhat greater in 1902 than in 1890. It is well known that the traffic on the leading street railways in the more thickly populated parts of our great cities has become much more dense than ever before. The explanation of the decline in the average number of fare passengers per mile of track is found in the increased length of rides taken by passengers, both in the large cities and on interurban roads—an increase partly attributable to the greater use of transfers—and in the construction of electric railways in small towns, suburban areas, and rural districts, where the number of passengers per mile of track is low. In 1890 the street railways were mainly confined to the large cities and to the more densely populated parts of those cities. Year by year urban railways, with the higher speed which electric traction has made possible, have been able to extend their tracks farther out and to offer longer journeys to their patrons. The average length of ride on the new interurban railways is also much greater than on railways within city limits. It is quite probable that, taking all street railways together, the passenger mileage, or number of passengers carried 1 mile, per mile of track operated, is larger to-day than it was in 1890, but statistics on this subject are wholly lacking.

The increase of traffic in the different sections of the country, as may be seen from Table 2, does not correspond closely with the increase in trackage. In those sections where, on account of the development of interurban railways, the trackage has been extended most markedly, the number of passengers has naturally risen with less rapidity. Thus, in the North Atlantic section, which shows the greatest addition to trackage, the number of passengers carried increased only 129.5 per cent. The most remarkable augmentation of traffic is in the South Atlantic states, 192.4 per cent. In view of the small increase of track in the South Central states, the fact that 114.4 per cent more passengers were carried in 1902 than in 1890 is striking.

*Traffic in relation to population.*—Table 5 shows for the country as a whole and its grand divisions the relation between street railway traffic and population at the two census periods.

TABLE 5.—*Relation of traffic to population by geographic divisions: 1902 and 1890.*

| DIVISION. | Year. | POPULATION.[1] Total. | POPULATION.[1] Urban (in places of 4,000 and over). | Total number of fare passengers carried. | AVERAGE NUMBER OF RIDES PER INHABITANT. Total. | AVERAGE NUMBER OF RIDES PER INHABITANT. Urban. |
|---|---|---|---|---|---|---|
| United States.. | 1902 | 75,994,575 | 28,372,392 | 4,774,211,904 | 63 | 168 |
| | 1890 | 62,947,714 | 20,745,974 | 2,023,010,202 | 32 | 98 |
| Increase... | ..... | 13,046,861 | 7,626,418 | 2,751,201,702 | 31 | 70 |
| North Atlantic.. | 1902 | 21,046,695 | 13,613,736 | 2,618,528,979 | 124 | 192 |
| | 1890 | 17,406,969 | 10,071,957 | 1,141,187,460 | 66 | 118 |
| Increase... | ..... | 3,639,726 | 3,541,779 | 1,477,341,519 | 58 | 79 |
| South Atlantic.. | 1902 | 10,443,480 | 2,049,520 | 297,198,541 | 28 | 145 |
| | 1890 | 8,857,922 | 1,554,190 | 101,647,174 | 11 | 65 |
| Increase... | ..... | 1,585,558 | 495,330 | 195,551,367 | 17 | 80 |
| North Central... | 1902 | 26,333,004 | 9,343,213 | 1,344,000,951 | 51 | 144 |
| | 1890 | 22,410,417 | 6,744,936 | 538,309,887 | 24 | 80 |
| Increase... | ..... | 3,922,587 | 2,598,277 | 805,691,064 | 27 | 64 |
| South Central... | 1902 | 14,080,047 | 1,896,655 | 210,103,861 | 15 | 111 |
| | 1890 | 11,170,137 | 1,339,232 | 98,005,026 | 9 | 73 |
| Increase... | ..... | 2,909,910 | 557,423 | 112,098,835 | 6 | 38 |
| Western..... | 1902 | 4,091,349 | 1,469,268 | 304,379,572 | 74 | 207 |
| | 1890 | 3,102,269 | 1,035,659 | 143,860,655 | 46 | 139 |
| Increase... | ..... | 989,080 | 433,609 | 160,518,917 | 28 | 68 |

[1] Population shown is that reported at the census of 1900.

Taking the population as determined by the census of 1900 for comparison with the statistics of traffic for 1902, the average number of rides per inhabitant is 63, as compared with 32 in 1890. To correct the computation for the present census in a rough manner, it may be assumed that during the one and one-half years from

the date of the population census to the middle of the year covered by the statistics of street railways, the population increased at the same ratio as from 1890 to 1900. On this basis the population at the beginning of 1902 would have been somewhat more than 78,300,000, and the average number of rides per inhabitant would be about 61. These figures indicate the great increase in the importance of the street railway as a factor in the life of the people. The table shows very wide differences between the sections of the country in the ratio of rides to total population, as might be expected from the great differences in the proportion of urban population. The South Atlantic states present the greatest percentage of increase in the number of rides per inhabitant, but the patronage of street railways there is still less than one-fourth as great as in the North Atlantic states.

Urban population and the number of street railway passengers are somewhat less closely related at present than in 1890, because of the recent extension of electric railways into rural districts. Nevertheless, more than nine-tenths of the passengers are probably still carried within urban areas, and comparison with urban population will give a much truer idea of the significance of street railway service to the people than comparison with the total population. On the basis of the population census of 1900, the number of street railway rides in 1902 was equal to 168 for every inhabitant of urban areas of 4,000 population and over, as compared with 98 in 1890. If the population of urban centers at the beginning of 1902 be roughly estimated, the average number of rides per urban inhabitant would be reduced to approximately 160 (calculating the increase in urban population for one and one-half years at the same ratio as from 1890 to 1900). Even thus it is seen that there has been a remarkable increase in the patronage of street railways by urban dwellers. Among the causes of this increase may be mentioned the construction of railways in urban communities where they were formerly lacking; the growth in geographic area covered by the larger cities, necessitating more extensive resort to street railway transportation; and the improved character of the service. The ratio of passengers to urban population is now highest in the Western states, next in the North Atlantic states, and lowest in the South Central states. The increase in the number of rides per urban inhabitant has been most marked in the South Atlantic states.

A comparison of the street railway traffic with the population of individual urban centers of more than 100,000 inhabitants for the censuses of 1890 and 1902 is presented elsewhere (page 24).

*Car mileage.*—The number of miles run by passenger cars on street and interurban railways in 1902 was 1,120,101,944. The report of passenger car mileage in 1890, 383,178,085 miles, did not cover the entire number of street railways in operation. The length of line of the railways for which the 1890 figures were reported was 4,375.81 miles out of a total of 5,783.47 miles. Most of the companies which failed to report car mileage, however, were those with light traffic. The number of passengers carried by companies reporting car mileage in 1890 was 1,775,174,685, or 87.7 per cent of the entire number of passengers for all street railways. If it be assumed that the car mileage represented the same proportion of the total car mileage for all street railways, the increase in car mileage from 1890 to 1902 would be about 155 per cent. Presumably, however, the car mileage reported in 1890 was a somewhat smaller proportion of the total car mileage than the proportion which passengers carried by companies reporting car mileage was of the total number of passengers, so that the actual increase in car mileage may have been slightly less.

The average number of fare passengers per passenger car mile has decreased slightly. Those companies which reported in full both passengers and car mileage in 1890 carried on the average 4.63 passengers per car mile. The railways which did not report car mileage were, for the most part, newer lines with light traffic, and it is possible that if their returns had been secured they would have served to reduce the average number of passengers per car mile for 1890 more nearly to the figure for 1902, which was 4.26. Since street cars are now of much larger size than in 1890, and are probably quite as crowded, the decrease in the number of passengers per car mile is doubtless due chiefly to the fact that the average ride is longer than formerly, and that the street railway service has been extended to areas where the density of the traffic is comparatively low.

*Receipts and expenditures.*—The total operating earnings for companies reporting earnings in 1890 were $90,617,211. On the assumption of a 5-cent fare, which is a trifle more than the average for companies which reported both passengers and earnings, the passenger earnings ($89,711,829) would represent 1,794,236,580 passengers, or not quite nine-tenths of the number carried by all street railways in that year. The operating earnings of all street railways in 1890 were probably, therefore, in the neighborhood of $100,000,000, as compared with $247,553,999 for the 799 operating companies which reported this item in 1902.

The operating expenditures reported for 1890, representing the same companies which reported operating earnings, amounted to $62,011,185, as compared with $142,312,597 in 1902. Of the reported earnings from operation in 1890, 99 per cent consisted of the receipts from passengers. In 1902, on the other hand, passenger earnings were only 94.5 per cent of the total receipts. There has been a great increase in the revenue derived by street railway companies from the sale of electric current, from freight, mail, and express service, and from advertising.

A comparison of the ratio of operating expenses to receipts for the two census periods can be made with approximate accuracy, since the companies reporting

these items were fairly typical of the street railway business generally at both censuses. Such a comparison shows an extremely interesting change. In 1890 the operating expenses reported were equal to 68.4 per cent of the operating receipts, while in 1902 the corresponding proportion was only 57.5 per cent. The street railways which in 1890 operated exclusively by animal power, and which were at that time much the most important group, showed a ratio of operating expenses to earnings of 73.7 per cent. The great reduction in the ratio of expenses to earnings is not due to an increase in the number of passengers carried per mile of track or per car mile, but is chiefly attributable to the economy of operation which has resulted from the introduction of electric traction. The increase in the size of cars and other less important changes in methods have also contributed to lessen expenses. While current expenses have thus been materially reduced in proportion to the traffic, it must be remembered that the fixed charges of street railways have been augmented, for in large measure this economy of operation has been made possible only through larger, though not necessarily proportionately larger, investment of capital.

*Distribution of income.*—The following table shows the distribution of gross income of street railway companies to different purposes in 1890 and 1902. Since the financial statistics of both censuses, particularly those for 1890, omitted some of the companies, the absolute figures should not be compared, but the proportions which the items bear in each case to the total represent fairly the financial operations of street railways in general at the respective periods.

TABLE 6.—*Distribution of the gross income of operating companies to leading items of expenditure: 1902 and 1890.*

| | AMOUNT. | | PERCENTAGE. | |
|---|---|---|---|---|
| | 1902[1] | 1890 | 1902 | 1890 |
| Gross income from all sources | $250,504,627 | $91,721,845 | 100.0 | 100.0 |
| Operating expenses | 142,312,597 | 62,011,185 | 56.8 | 67.6 |
| Fixed charges, total | 77,595,053 | 13,978,903 | 31.0 | 15.2 |
| Taxes and licenses | 13,078,899 | 3,308,190 | 5.2 | 3.6 |
| Rentals | 25,518,225 | 2,561,343 | 10.2 | 2.8 |
| Interest | 38,085,911 | 8,086,216 | 15.2 | 8.8 |
| Miscellaneous | 912,018 | 23,154 | 0.4 | [2] |
| Dividends | 15,882,110 | 10,180,726 | 6.3 | 11.1 |
| Miscellaneous payments | ..... | 1,217,193 | ..... | 1.3 |
| Surplus | 14,714,867 | 4,333,838 | 5.9 | 4.8 |

[1] Not including 18 companies with a trackage of 378.90 miles.
[2] Less than one-tenth of 1 per cent.

Aside from the relative decrease in operating expenses, already discussed, the more conspicuous changes since 1890, shown by this table, are the great increase in the proportion of total income devoted to taxes, to rentals of leased lines, and to interest on debt. The dividends paid by operating companies were a smaller proportion of their income in 1902 than in 1890. In 1890 the amount paid as interest by such companies was only four-fifths as great as the amount paid in dividends, while in 1902 it was more than twice as great. A comparison of the distribution of income, based on the returns of lessor as well as of operating companies, can not be made because no separate returns of lessor companies were made in 1890.

*Capital stock and funded debt.*—The statistics of the capitalization of street railways in 1890 were not complete. The length of line for companies reporting both trackage and capitalization at that census was 4,542.88 miles, or 78.5 per cent of the total mileage. The capital stock of these companies amounted to $272,441,843 and their funded debt to $176,611,826. The returns for 1902, which are essentially complete, show capital stock of $1,315,572,960 and funded debt of $992,709,139. The length of line in 1902 being 16,651.58 miles, it will be observed that the capitalization has increased much faster than the mileage.

The average total capital liabilities per mile of line in 1890 for companies reporting capitalization were $98,848. In 1902 the capital liabilities, not deducting that part of the capital stock and funded debt which is represented by investments in securities or nonrailway property, but excluding about 50 miles of line leased from steam railroads, amounted to $139,778 per mile of line. The comparison, based on length of line rather than on length of track, is necessarily imperfect, but the figures on the basis of trackage are not available in the census of 1890. Some of the reasons why an increase of capitalization per mile should be expected are mentioned in Part I, Chapter IV. It is evident that the track, the power plant, and the equipment of a modern electric railway must cost much more than the old-fashioned horse car track and its equipment. The increase in funded debt since 1890 has been more than in proportion to the increase in capital stock. Capital stock constituted 60.7 per cent of the total capital liability reported in 1890 and 57 per cent of the total in 1902.

# CHAPTER III.

## TRAFFIC.

### I.

### TRAFFIC OF COMPANIES, CLASSIFIED ACCORDING TO POWER.

From the standpoint of the public welfare the most important information regarding street and electric railways is that which has to do with their traffic.

The details of traffic on each street and electric railway of the country are shown in Table 97, which also presents the totals for each state. The operations of 813 out of 817 operating companies, representing all but 57.29 miles of the trackage, or about 99.8 per cent of the total, are included in this table. Four companies failed to furnish information regarding traffic. As shown in footnotes, moreover, a number of other companies furnished incomplete returns, and therefore the figures for passengers carried and car mileage have been estimated when necessary, on the basis of other data in the returns or of unofficial information. Two of the 813 companies included in the table handle freight business only.

The totals of the more important items for the United States as a whole are presented in Table 7, which also groups the statistics according to the kind of power and character of service, as explained in Chapter I. It will be remembered that a considerable number of companies classed as electric surface lines operate in part by animal or cable power or on elevated tracks. It should be noted also that the distinction between electric lines which operate lighting plants and those which do not operate them is of much less significance in connection with traffic statistics, as in this table, than in connection with those for finances.

TABLE 7.—TRAFFIC OF COMPANIES, CLASSIFIED ACCORDING TO POWER: 1902.[1]

| | Total. | ELECTRIC, SURFACE. | | | Animal. | Steam and electric, elevated. | Cable, surface and inclined planes. | Steam, surface. |
|---|---|---|---|---|---|---|---|---|
| | | Without commercial lighting. | With commercial lighting. | Part time only. | | | | |
| Number of companies | [2] 813 | 570 | 112 | 57 | 52 | 5 | 14 | [3] 2 |
| Fare passengers | 4,774,211,904 | 4,062,447,908 | 305,833,612 | 37,738,491 | 33,556,832 | 315,105,775 | 19,359,341 | 169,945 |
| Transfer passengers | 1,062,403,392 | 994,946,863 | 48,099,978 | 2,327,853 | 11,978,789 | ..... | 5,049,909 | ..... |
| Fare passengers per mile of track constructed | [3] 212,217 | 216,365 | 124,304 | 45,404 | 214,943 | 1,381,437 | 584,698 | 14,092 |
| Passenger-car miles | 1,120,101,944 | 942,021,415 | 84,173,113 | 12,810,588 | 5,648,107 | 72,226,315 | 3,142,756 | 79,650 |
| Fare passengers per passenger car mile | 4.26 | 4.31 | 3.63 | 2.95 | 5.94 | 4.36 | 6.16 | 2.13 |
| Mileage of freight, mail, express, and miscellaneous cars | [4] 24,328,522 | [5] 11,776,544 | 869,823 | 209,460 | 21,546 | [6] 11,421,099 | 1,400 | 28,650 |
| Total car miles | 1,144,430,466 | 953,797,959 | 85,042,936 | 13,020,048 | 5,669,653 | 83,647,414 | 3,144,156 | 108,300 |
| Car miles per mile of track constructed | 50,820 | 50,737 | 34,565 | 15,665 | 36,316 | 366,714 | 94,961 | 8,980 |
| Accidents: | | | | | | | | |
| Persons killed | 1,217 | 1,059 | 105 | 21 | 6 | 25 | 1 | ..... |
| Persons injured | 47,429 | 42,740 | 4,198 | 242 | 18 | 157 | 74 | ..... |

[1] Exclusive of reports for 4 companies which failed to furnish this information.
[2] Includes 2 railways carrying freight only.
[3] Exclusive of trackage of 2 railways carrying freight only.
[4] Includes 15,201,575 car miles run by locomotives on Brooklyn Rapid Transit and Manhattan (elevated) railways.
[5] Includes 3,983,738 car miles run by locomotives on Brooklyn Rapid Transit Railway.
[6] Includes 11,217,837 car miles run by locomotives on Manhattan (elevated) Railway.

*Number of passengers.*—The entire number of fare passengers carried by the street and electric railways during the census year was 4,774,211,904. Of the companies reporting 57 were in operation less than the entire year. These companies, however, were of much less average importance than the full-time companies. Their trackage was only 4 per cent of the total for all companies, and the number of passengers carried by them, 37,738,491, was less than 1 per cent of the total number.

The relation between the number of passengers and the population of the country, both total and urban, has already been presented in connection with the comparison between 1890 and 1902.

The total number of free-transfer passengers carried in 1902 was 22.2 per cent as great as the number of fare passengers. Free-transfer passengers are not to be considered as constituting strictly an addition to the amount of street railway traffic. Of the 811 companies reporting, 408, or almost exactly one-half, grant free

transfers. The total number of transfer points reported is 4,455, an average of nearly 11 for each of the 408 companies.[1] In the few instances where a charge is made for transferring passengers they are counted as fare passengers.

The street railways of the United States carried in 1902 more than seven times as many fare passengers as the steam railways, which transported 649,878,505 persons during the year ending June 30, 1902; but such a comparison means little, since steam railway journeys average very much longer than those on street railways. The average distance traveled by passengers on steam railways is 30.3 miles.[2] Though no similar figures can be given for street railways, as they do not—and most of them could not—keep records of the distances traveled by their passengers, it is probable that the total distance traveled by passengers on the street railways is less than the total distance traveled by those on steam railways. Another view of the relative importance of passenger traffic on the two classes of railways may be gained by comparing their receipts from passengers. The steam railways in 1902 received $392,963,248 from passengers; the street railways, $233,821,548.

Railways which used electric power primarily and which operated chiefly on the surface, carried 92.3 per cent of the fare passengers of all street and electric lines. Though a considerable amount of animal, cable, and elevated trackage is included in this group, it is safe to assume that seven-eighths of the traffic of all the railways covered by the investigation is carried on surface tracks operated by electricity.

The electric lines which operate lighting plants in connection with their railway business, though they are one-fifth as numerous as those without lighting plants and operate more than one-eighth as much track, carried only one-thirteenth as many passengers in 1902. The reason for this condition lies in the fact that, as shown in Table 96, with a few exceptions, the electric railways which operate lighting plants are confined to small and medium-sized towns. The financial statistics show that of urban centers having more than 100,000 inhabitants, only Milwaukee, Toledo, and St. Joseph have railway companies which do a lighting business worthy of the name. There are economies in combining the two kinds of service in smaller towns which do not accrue in such large measure in great cities. In some cases, moreover, particularly in the larger cities, state or municipal law does not permit street railways to do a lighting business. Perhaps the most important reason why street railways in the largest cities do not operate lighting plants lies in the fact that electricity was commercially applied to the production of light before it was applied to street railways. Lighting plants were already established in many cities before the horse railways had begun to change to electric traction.

Of the other kinds of street and interurban railways those operating exclusively by animal power carried in 1902 only about two-thirds of 1 per cent of the fare passengers. The 5 strictly elevated railways carried about 6.6 per cent of the total number. Of the passengers on these elevated railways, the Manhattan Elevated Railway of New York carried about two-thirds. The 3 purely cable roads in San Francisco carried 15,562,352 passengers, and the 11 inclined-plane cable roads carried 3,796,989.

*Density of traffic per mile of track.*—No other single factor in street railway business exercises such a powerful influence upon its profitableness as the density of traffic. The number of passengers carried by each street railway per mile of track operated is shown in Table 97. The figures for each individual company are based on the total length of track operated by it, including in a number of cases a certain amount of track belonging to other companies and operated jointly under trackage rights. From the standpoint of the individual railway this method gives a more correct basis for calculating the density of its traffic than a computation based on the trackage owned or leased by the company for its exclusive use, for the operating expenses include those incurred upon the tracks used under trackage rights, and the payment to other companies for such use is virtually equivalent to a fixed charge on part of the capital invested in the tracks so operated. The mileage basis used in computing the density of traffic for the United States and for the separate states and groups of companies is the mileage of track constructed, regardless of the question whether any part of such track is operated by more than one company.

The number of passengers per mile of track for the country as a whole is 212,217. If only companies operating the entire year be considered, the number of passengers carried per mile of track is 218,616. This number is independent of the length of journeys, and of course does not represent the number of persons who actually pass over a given length of street railway track during the year. The average density of traffic on electric railways which furnish commercial lighting is less than three-fifths as great as on other electric railways. This results naturally from the fact that the railways furnishing commercial lighting are mainly in the smaller towns of the country. The average density for all full-time electric surface railways combined is 205,478 passengers per mile of track. The fact that roads operated exclusively by animal power show a still greater density of traffic is due to the influence of the four horse car lines in New York city, which carried more than 90 per cent of the total number of passengers reported by the 52 exclusively horse roads in the United States. The average number of fare pas-

[1] For fuller discussion of the subject of transfers, see page 41.
[2] Report of Interstate Commerce Commission on Statistics of Railways, 1902.

sengers per mile of track owned on these four railways was 989,100. If, however, the mileage operated under trackage rights, which is largely owned by companies primarily electric, be included, the average number of fare passengers per mile of track was 693,923. The other 48 companies of this group, operating in very small towns that do not afford enough traffic to justify the installation of electricity, carried an average of only 24,523 passengers per mile.

It is also primarily because the elevated railways are situated in very large cities that they show a much greater density of traffic than the average for other classes of railways, 1,381,437 passengers per mile of track. Elevated roads perhaps have a somewhat greater possible carrying capacity than surface roads because of their large cars, long trains, and high speed. It may be noted, however, that the number of passengers per mile of track on the Manhattan Elevated Railway in New York city, 1,837,625, only slightly exceeds that on the Third Avenue and Interurban surface systems in that city, 1,612,630 and 1,434,088, respectively. But in making such comparisons it should be recalled that traffic on surface railways is probably somewhat more evenly distributed through the day than that on elevated railways, and also that the average ride on the elevated railways is considerably longer than on the surface lines in the same cities.

The density of traffic on the ordinary cable railways and the inclined plane cables is also high as compared with that of electric railways as a group. The three ordinary cable railways, all in San Francisco, show an average density of 564,877 per mile, which is twice as great as the average density for electric railways in cities of from 100,000 to 500,000 inhabitants. On account of the heavy initial investment required, cable railways are profitable only where traffic is very dense, and they do not, therefore, extend into suburban districts as electric lines do. The still higher density of traffic on inclined planes, 682,912 passengers per mile, is due to the fact that these lines are very short and that the passengers in most instances ride only a fraction of a mile. These inclined plane cables are built, in most cases, up the steep bluffs of river valleys, as, for instance, in Pittsburg.

*Car mileage.*—Statistics of car mileage are unsatisfactory because of the difference in the size of cars and in the conditions under which they are operated. Car mileage on a fast interurban railway, which runs cars 50 or 60 feet in length with 150-horsepower motors at an average speed of 20 miles per hour, means quite a different thing from that on a horse railway operating cars 16 feet long at an average speed of 5 or 6 miles per hour. The use of "trailers" is also a source of confusion in some cases. On important street railway lines in Chicago, Washington, and one or two other cities, from one to three trail cars are regularly attached to the power car, while on some other railways trailers are attached to cars during rush hours, either every day or occasionally. The practice of companies with regard to registration of car mileage where trailers are used is not uniform; sometimes the entire train is treated as the unit; sometimes the individual car. Thus one of the systems in Washington, D. C., uses the first basis for computing car mileage while the other system uses the second. In Chicago, where trailers are more extensively employed than in any other city, the mileage of each car in a train is counted. Where trailers are used the individual cars are usually comparatively small, and in some cases the entire train may carry few more passengers than an ordinary large single car on other urban railways. However, the use of trailers is not sufficiently common to affect materially the totals for groups of companies. The car mileage on the elevated railways represents single cars, but includes that of steam locomotives.

The total distance traversed by street and interurban railway cars, including steam locomotives on elevated roads, in 1902 was 1,144,430,466 miles, or more than 45,000 times the circumference of the earth. About 92 per cent of this mileage was upon railways operating wholly or chiefly by electric traction, and on the surface of the street. Further, the car mileage per mile of track constructed for the country, as a whole, was 50,820. In other words, each mile of track in the country was traversed by an average of 50,820 cars during the year, or 139 cars each day. There is a wide range in the number of car miles per mile of track upon different railways, as is seen in the statistics of companies classified according to population.

On elevated railways each mile of track was traversed on an average by 366,714 cars a year or 1,005 a day. On these railways, cars are usually run in trains of from 3 to 6 cars. The number of car miles per mile of track on the three ordinary cable railways was 103,676; on inclined planes it was 51,776.

The distance traveled over all street and interurban railways by express, mail, freight, work, and miscellaneous cars was 9,126,947 miles in 1902, or less than 0.8 per cent of the total car mileage. The mileage of such miscellaneous cars on elevated, cable, and horse railways is insignificant. The travel of steam locomotives on the elevated railways amounted to 15,201,575 miles. A considerable proportion of the express, mail, and freight traffic is handled on passenger cars, but reference to the statistics of street railway receipts shows that the income from these classes of traffic amounts to only about three-fourths of 1 per cent of the total income of street and interurban railways.

*Density of passenger traffic per car mile.*—The ratio of the number of fare passengers to the number of car miles run has a very important bearing upon the prosperity of the street railway business. For the country as a whole the average number of fare passengers per

car mile in 1902 was 4.26, the cars running, therefore, on an average, nearly one-fourth of a mile for each fare collected. The figures for each company are given in Table 97. Differences in the size of cars and the length of rides on different railways and groups of railways render comparisons of the density of traffic per car mile misleading, unless the local conditions are thoroughly known. Where passengers ride long distances the number of passengers per car mile is proportionately reduced, and thus a street railway whose cars are always crowded may yet be less profitable than another with apparently lighter traffic, but whose passengers ride shorter distances.

In the absence of information as to the average length of rides, it is impossible to determine in what proportion the capacity of the street railway cars of the country, considered as a whole, is occupied. There are times of the day on most railways, particularly in large cities, when the cars are greatly overcrowded; but there are other times on many railways when the maintenance of a schedule considered satisfactory by the people means the operation of half-empty cars. Not infrequently a railway finds it advantageous to grant liberal transfer privileges, reduce fares, or extend the possible length of journey, in order that new traffic thus created may fill the cars which the regular patrons would in any event consider necessary to a satisfactory schedule. With slight qualifications it may be said that it costs no more to operate a car full than a car empty. When, however, increase of traffic thus secured involves a corresponding addition of cars to the schedule, the advantages to the railway company may disappear.

Though cars on elevated railways are considerably larger than those on ordinary surface lines, the average journey on the elevated is longer, so that the number of fare passengers per car mile is only a fraction greater on these railways than on the electric surface lines as a whole. Indeed, the number of fare passengers per car mile is less on the elevated railways than on the leading surface railways of the same cities. The Manhattan Elevated Railway, of New York, shows 4.78 fare passengers per passenger car mile as compared with 6.51 for the Interurban, and 6.59 for the Third Avenue line.

Similarly, though, the cars operated by animal power are smaller than those operated by electricity, the average ride on the horse car is so much shorter that the ratio of fare passengers to car mileage in New York city, where the greater part of the traffic is found, is higher on horse railways than on electric railways. Three of the 4 horsepower companies in New York city report more fare passengers per car mile than either of the 2 leading electric surface systems in Manhattan borough. A large proportion of the passengers who pay fares on these horse railways are transferred, without charge, to the electric lines. The railways operating by animal power outside of New York, however, have only 2.25 passengers per car mile, a figure which points to a very low rate of profit.

The 3 ordinary cable railways report 5.09, 5.10, and 5.79 passengers, respectively, per car mile. The rides on the inclined-plane cable railways are so short that they all present a very high ratio, the average being 13.26 fare passengers per car mile. The Monongahela Incline Plane Company, of Pittsburg, shows even 69.15 fare passengers per mile run.

*Car hours.*—Statistics for the number of hours during which street railway cars run are of significance, since in connection with the statistics of car mileage they show the average speed maintained. Moreover, the number of passengers per car hour is a datum which, to the street railway manager, should be scarcely second in interest to the number of passengers per car mile, since upon it largely depends the outlay for wages of motormen and conductors, as well as various other items of expense. Thus a railway which has fewer passengers per car mile than another may yet be more profitable, if each of its cars earns more fares within a given length of time.

Unfortunately, however, less than half the street railways of the country keep records of car hours. The total number of car hours reported in 1902 by the 390 companies which gave this information was 65,869,342. These companies carried 2,176,886,559 fare passengers; therefore, each car carried an average of 33.28 passengers per hour of operation. Most of the companies reporting car hours are operated by electricity. The 4 elevated railways in Chicago have from 43.21 to 56.93 passengers per car hour; these figures, as might be expected from the high speed of elevated trains, being considerably larger than for most surface railways in great cities.

*Accidents.*—The following table shows the figures for accidents on street railways. The details for each company are shown in Table 97.

TABLE 8.—*Accidents on street and electric railways: 1902.*[1]

| | Persons killed. | Persons injured. |
|---|---|---|
| Total | [2]1,218 | 47,429 |
| Passengers | 265 | 26,690 |
| Employees | 122 | 3,699 |
| Other persons | 831 | 17,040 |

[1] Exclusive of 4 companies which failed to furnish information concerning accidents.

[2] One company, with 1,323 accidents, failed to distinguish those killed from those injured, and they are all included in the second column. Three companies, with 23 persons killed and 1,983 injured, reported accidents to passengers and employees under "other persons." One company, with 12 persons killed and 656 injured, reported "other persons" under passengers.

The returns show 1,218 persons killed and 47,429 injured by accidents on street railways. It is believed that the total for persons killed is essentially correct, but the reports of persons injured are known to vary in their completeness as between different companies,

according to the degree of injury deemed sufficient to justify recording. Some companies stated to the agents of the Bureau of the Census that their return of accidents included only injuries of a really serious character; while others asserted that it was impracticable for them to distinguish accurately between serious injuries and the many wholly unimportant accidents reported by conductors, and they, therefore, included all accidents in their report.

In another place will be found statistics showing the large amount of damages collected from railway companies and the large legal expenses incurred in connection with damage suits. It is asserted by the street railway companies that a large proportion of the claims made upon them for damages are altogether unwarranted or greatly exaggerated.

It is noteworthy that 831, or 68 per cent of the persons killed by the street railways, were neither passengers nor employees. The number of passengers killed was 1 for every 18,015,894 fare passengers carried; while 1 passenger was injured for every 178,876 fare passengers carried. The number of street railway employees killed was 122, or 1 out of 1,095 wage-earners employed (omitting officers and clerks). Injured employees numbered 1 for every 36.1 wage-earners. Corresponding proportions for steam railways in the year ending June 30, 1902, were 1 killed to 401, and 1 injured to 24 employed. The risk of accidental death to street railway employees is, therefore, apparently less than two-fifths as great as the risk to steam railway employees, and the risk of injury about two-thirds as great.

The following table shows the number of accidents in relation to the number of car miles operated, for the various groups of street railways as classified according to power:

TABLE 9.—*Accidents on railways, classified according to power: 1902.*[1]

| CLASS OF RAILWAYS. | Persons killed. | Persons injured. | Number of car miles to each person killed. | Number of car miles to each person injured. |
|---|---|---|---|---|
| Electric, surface | 1,185 | 47,180 | 887,646 | 22,295 |
| Animal | 6 | 18 | 944,942 | 314,981 |
| Elevated | 25 | 157 | 3,345,897 | 532,786 |
| Cable, surface and inclined planes | 1 | 74 | 3,144,156 | 42,489 |
| Steam, surface | 0 | 0 | ..... | ..... |

[1] Exclusive of reports for 4 companies which failed to furnish information regarding this item.

The total number of accidents, particularly those of a fatal character, is so small on the animal power, elevated, and cable railways that comparisons based on the returns of a single year have little value for general conclusions. On the face of the statistics it appears that the elevated railways are much less dangerous than the surface lines. The number of car miles run for each person killed on the elevated lines is 3,345,897, as compared with 887,646 for electric surface railways. Persons other than passengers and employees are not likely to be killed or injured on elevated railways, while such persons are probably less likely to suffer accidents from horse cars than from other surface cars. The number of persons injured but not killed is, according to the returns, much greater in proportion to the car mileage on electric and cable railways than on animal power and elevated roads.

*Traffic by states in relation to population.*—The statistics of traffic by states, as presented in Table 97, require no special comment. Comparisons among states are less significant than those among individual cities or groups of cities. It is interesting, however, to compare the amount of street railway traffic in the several states with their population, and more particularly with their urban population, in places of 4,000 inhabitants and over. These data, based on the population census of 1900, are presented in Table 10, which also shows the proportion of urban population to the total population for each state. Similar comparisons for the grand divisions of the country have already been presented in connection with the summary of statistics for 1890 and 1902.

The most important factor in determining the extent of street railway traffic in the different states is obviously the presence or absence of cities, and particularly of large cities. Thus the relative rank of the states in the proportion of street railway rides to total inhabitants corresponds quite closely with their rank as regards the proportion of urban to total population. The proportion of rides to the total population is greatest in the District of Columbia, where the whole population is urban, and is next greatest in Massachusetts, which ranks third among the states in respect to proportion of urban population, 86.9 per cent of all its inhabitants living in places of 4,000 inhabitants and over. In New York, which ranks fourth in the proportion of urban population, the number of rides per inhabitant is next to that for Massachusetts. There are 14 states in which more than 40 per cent of the population is urban; and all of these 14, except New Hampshire and Delaware, report more than 60 street railway rides per inhabitant. On the other hand, only 2 states that have an urban population less than 40 per cent of their total population, namely, Washington and Missouri, report more than 60 rides per inhabitant. There are 7 states and territories which show less than 10 street railway rides per inhabitant, and in no one of these, except Kansas, does the proportion of urban to total population exceed 12 per cent.

A comparison of the number of rides with the number of urban inhabitants in the several states gives some idea of the comparative extent to which street railways are developed, and also of the extent to which they are patronized by those within reach of their service. The number of rides and the number of

urban inhabitants are somewhat less closely related items in such states as Michigan, Ohio, and Indiana, where interurban railways have been developed very extensively, than in states like New York and Pennsylvania, where the great bulk of railway traffic is still confined to urban areas.

TABLE 10.—RELATION OF PASSENGER TRAFFIC TO TOTAL POPULATION AND URBAN POPULATION (PLACES OF 4,000 INHABITANTS OR OVER), BY STATES AND TERRITORIES: 1902.[1]

| STATE OR TERRITORY. | Number of companies. | Population, 1900. | Total number of fare passengers carried, 1902. | Average number of rides per inhabitant. | Urban population (places of 4,000 inhabitants and over), 1900. | Ratio of urban to total population, percentage. | Average number of rides per urban inhabitant. |
|---|---|---|---|---|---|---|---|
| United States | 811 | 75,994,575 | 4,774,211,904 | 63 | 28,372,392 | 38.0 | 168 |
| Alabama | 9 | 1,828,697 | 22,748,871 | 12 | 182,448 | 10.0 | 125 |
| Arizona | 2 | 122,931 | 797,970 | 6 | 13,075 | 10.6 | 61 |
| Arkansas | 7 | 1,311,564 | 6,880,479 | 5 | 90,396 | 6.9 | 76 |
| California | 35 | 1,485,053 | 182,196,999 | 123 | 726,655 | 48.9 | 251 |
| Colorado | 7 | 539,700 | 42,371,590 | 79 | 222,184 | 41.2 | 191 |
| Connecticut | 22 | 908,420 | 77,447,101 | 85 | 595,250 | 65.5 | 130 |
| Delaware | 3 | 184,735 | 9,956,559 | 54 | 76,508 | 41.4 | 130 |
| District of Columbia | 8 | 278,718 | 66,162,321 | 237 | 278,718 | 100.0 | 237 |
| Florida | 6 | 528,542 | 8,249,542 | 16 | 87,414 | 16.5 | 94 |
| Georgia | 10 | 2,216,331 | 32,463,851 | 15 | 308,687 | 13.9 | 105 |
| Idaho | 1 | 161,772 | 314,340 | 2 | 10,003 | 6.2 | 31 |
| Illinois | 49 | 4,821,550 | 463,190,986 | 96 | 2,460,143 | 51.0 | 188 |
| Indiana | 27 | 2,516,462 | 66,255,767 | 26 | 770,407 | 30.6 | 86 |
| Iowa | 22 | 2,231,853 | 38,559,589 | 17 | 456,479 | 20.5 | 84 |
| Kansas | 11 | 1,470,495 | 6,832,064 | 5 | 282,611 | 19.2 | 24 |
| Kentucky | 12 | 2,147,174 | 56,293,852 | 26 | 423,646 | 19.7 | 133 |
| Louisiana | 8 | 1,381,625 | 55,343,843 | 40 | 347,276 | 25.1 | 159 |
| Maine | 19 | 694,466 | 25,495,164 | 37 | 251,685 | 36.2 | 101 |
| Maryland | 10 | 1,188,044 | 99,989,552 | 84 | 572,795 | 48.2 | 175 |
| Massachusetts | 75 | 2,805,346 | 461,745,615 | 165 | 2,437,994 | 86.9 | 189 |
| Michigan | 24 | 2,420,982 | 113,916,992 | 47 | 900,556 | 37.2 | 126 |
| Minnesota | 5 | 1,751,394 | 73,236,612 | 42 | 542,251 | 31.0 | 135 |
| Mississippi | 5 | 1,551,270 | 3,101,015 | 2 | 82,099 | 5.3 | 38 |
| Missouri | 16 | 3,106,665 | 211,808,737 | 68 | 1,084,014 | 34.9 | 195 |
| Montana | 5 | 243,329 | 6,858,502 | 28 | 69,989 | 28.8 | 98 |
| Nebraska | 4 | 1,066,300 | 22,228,325 | 21 | 221,693 | 20.8 | 100 |
| New Hampshire | 7 | 411,588 | 11,304,908 | 27 | 192,240 | 46.7 | 59 |
| New Jersey | 26 | 1,883,669 | 188,976,899 | 100 | 1,272,259 | 67.5 | 149 |
| New Mexico | 1 | 195,310 | 73,000 | 37 | 11,841 | 6.1 | 6 |
| New York | 96 | 7,268,894 | 1,144,491,509 | 157 | 5,176,414 | 71.2 | 221 |
| North Carolina | 7 | 1,893,810 | 5,337,367 | 3 | 152,019 | 8.0 | 35 |
| Ohio | 63 | 4,157,545 | 285,434,579 | 69 | 1,864,519 | 44.8 | 153 |
| Oregon | 6 | 413,536 | 18,729,442 | 45 | 114,134 | 27.6 | 164 |
| Pennsylvania | 98 | 6,302,115 | 642,513,812 | 102 | 3,223,337 | 51.1 | 199 |
| Rhode Island | 8 | 428,556 | 62,279,165 | 145 | 392,509 | 91.6 | 159 |
| South Carolina | 7 | 1,340,316 | 9,056,818 | 7 | 157,111 | 11.7 | 58 |
| Tennessee | 8 | 2,020,616 | 35,697,835 | 18 | 285,886 | 14.1 | 125 |
| Texas | 17 | 3,048,710 | 30,037,966 | 10 | 454,926 | 14.9 | 66 |
| Utah | 3 | 276,749 | 11,493,501 | 42 | 81,480 | 29.4 | 141 |
| Vermont | 9 | 343,641 | 4,274,806 | 12 | 72,048 | 21.0 | 59 |
| Virginia | 20 | 1,854,184 | 44,275,661 | 24 | 305,229 | 16.5 | 145 |
| Washington | 8 | 518,103 | 41,544,228 | 80 | 188,750 | 36.4 | 220 |
| West Virginia | 8 | 958,800 | 21,706,870 | 23 | 111,039 | 11.6 | 195 |
| Wisconsin | 17 | 2,069,042 | 62,537,300 | 30 | 714,556 | 34.5 | 88 |

[1] Exclusive of reports for 6 companies, with a trackage of 80.14 miles, distributed as follows: Colorado, 4.08 miles; Connecticut, 1.36 miles; Illinois, 21.49 miles; Kansas, 39 miles; South Dakota, 2 miles; and Virginia, 12.21 miles.

States having one or two very large cities may be expected to show a higher proportion of rides to urban inhabitants than states which have an equally large percentage of urban population scattered in smaller towns. Thus, in California, which has the highest proportion of rides to urban population (251), the cause is found in the fact that a large proportion of the street railway trackage is in San Francisco, whose hilly streets compel general resort to this method of travel. New York, with her enormous metropolis, ranks third in the ratio of passengers to urban population. The steep streets of the cities in Washington account in part for the high ratio of rides to urban inhabitants in that state. The other states which show more than 150 rides per urban inhabitant are, in the order named: District of Columbia, Pennsylvania, Missouri, West Virginia, Colorado, Massachusetts, Illinois, Maryland, Oregon, Louisiana, Rhode Island, and Ohio.

Only 5 states report fewer than 50 rides per urban inhabitant, and in none of these except Kansas is there a city of more than 25,000 population. The report of the total number of rides for Kansas is quite misleading, since the passengers belonging to Kansas City, Kans., and smaller adjacent towns are included in the returns of the Metropolitan Street Railway, of Kansas City, Missouri.

## II.

### TRAFFIC OF COMPANIES, CLASSIFIED ACCORDING TO POPULATION.

Table 11 is a summary of the most important items relating to traffic for street and electric railways as classified on the second basis described in Chapter I, according to the population of the centers in which they lie, with the further distinction of "fast, long," and "other" interurban railways.

TABLE 11.—TRAFFIC OF COMPANIES, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | Over 500,000. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | [2] 813 | 66 | 47 | 85 | 315 | 55 | 245 |
| Fare passengers | 4,774,211,904 | 2,456,542,270 | 994,327,853 | 433,049,842 | 195,219,320 | 113,820,795 | 581,251,824 |
| Transfer passengers | 1,062,403,392 | 608,062,946 | 276,401,373 | 67,695,795 | 17,255,506 | 12,158,763 | 80,829,009 |
| Fare passengers per mile of track constructed | [3] 212,217 | 491,418 | 279,320 | 150,273 | 87,711 | 40,199 | 96,888 |
| Passenger-car miles | 1,120,101,944 | 504,811,418 | 239,940,699 | 115,411,493 | 63,571,907 | 45,358,873 | 151,007,554 |
| Fare passengers per passenger-car mile | 4.26 | 4.87 | 4.14 | 3.75 | 3.07 | 2.51 | 3.85 |
| Mileage of freight, mail, express, and other miscellaneous cars | [4] 24,328,522 | [4] 17,842,405 | 821,948 | 364,333 | 617,901 | 1,719,402 | 2,962,533 |
| Total car miles | 1,144,430,466 | 522,653,823 | 240,762,647 | 115,775,826 | 64,189,808 | 47,078,275 | 153,970,087 |
| Car miles per mile of track constructed | 50,820 | 104,554 | 67,633 | 40,176 | 28,840 | 16,627 | 25,568 |
| Accidents: | | | | | | | |
| Persons killed | 1,217 | 491 | 221 | 124 | 89 | 90 | 202 |
| Persons injured | 47,429 | 18,289 | 19,518 | 3,109 | 632 | 1,481 | 4,400 |

[1] Exclusive of reports for 4 companies which failed to furnish this information.
[2] Includes 2 railways carrying freight only.
[3] Exclusive of trackage of 2 railways carrying freight only.
[4] Includes 15,201,575 car miles run by locomotives on Brooklyn Rapid Transit and Manhattan (elevated) railways.

The data in Table 12 are for the same statistical inquiries as in Table 11, but they apply only to full-time electric surface railways not furnishing commercial lighting.

TABLE 12.—TRAFFIC OF FULL-TIME ELECTRIC SURFACE RAILWAYS, WITHOUT COMMERCIAL LIGHTING, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | Over 500,000. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | [2] 570 | 48 | 38 | 68 | 168 | 42 | 206 |
| Fare passengers | 4,062,447,908 | 2,107,329,902 | 902,333,125 | 321,659,513 | 128,602,963 | 85,162,271 | 517,360,134 |
| Transfer passengers | 991,946,863 | 594,326,985 | 251,242,536 | 58,195,785 | 10,913,058 | 9,227,851 | 71,040,648 |
| Fare passengers per mile of track constructed | [3] 216,365 | 446,527 | 277,509 | 150,739 | 95,204 | 38,226 | 101,593 |
| Passenger-car miles | 942,021,415 | 427,973,469 | 220,024,584 | 86,238,634 | 39,423,259 | 35,585,153 | 132,776,316 |
| Fare passengers per passenger-car mile | 4.31 | 4.92 | 4.10 | 3.73 | 3.26 | 2.39 | 3.90 |
| Mileage of freight, mail, express, and other miscellaneous cars | [4] 11,776,544 | [4] 6,419,906 | 821,948 | 219,872 | 312,973 | 1,369,315 | 2,632,530 |
| Total car miles | 953,797,959 | 434,393,375 | 220,846,532 | 86,458,506 | 39,736,232 | 36,954,468 | 135,408,846 |
| Car miles per mile of track constructed | 50,737 | 92,045 | 67,921 | 40,517 | 29,417 | 16,588 | 26,471 |
| Accidents: | | | | | | | |
| Persons killed | 1,059 | 460 | 200 | 96 | 57 | 68 | 178 |
| Persons injured | 42,740 | 18,117 | 16,974 | 2,440 | 453 | 1,133 | 3,623 |

[1] Exclusive of reports for 2 companies which failed to furnish this information.
[2] Includes 2 railways carrying freight only.
[3] Exclusive of trackage of 2 railways carrying freight only.
[4] Includes 3,983,738 car miles run by locomotives on Brooklyn Rapid Transit Railway.

Though the presence or absence of a lighting plant in connection with a street railway does not materially affect its traffic conditions, yet for the purpose of comparison with the financial tables, the group of electric railways without commercial lighting only is included in Table 12.

*Number of passengers.*—The first conspicuous fact which appears in Table 11 is that 2,456,542,270, or more than one-half of all fare passengers on street and interurban railways, were carried by companies in the few urban centers of more than 500,000 population. Urban railways in cities and towns of less than 100,000 population carried less than one-seventh of all fare passengers.

It should be noted that a considerable proportion of the fare passengers of companies classed as interurban are carried wholly within the limits of urban communities, and especially of communities of less than 100,000 population. Thus the whole urban traffic of several important cities, such as Detroit, Mich., Lawrence, Lowell, Worcester, Springfield, and Fall River, Mass., Hartford and New Haven, Conn., and Canton, Akron, and Youngstown, Ohio, is handled exclusively by companies classed, in accordance with the criteria mentioned in Chapter I, as interurban. Even with the deductions indicated, however, the amount of interurban street railway traffic in its strict sense is very considerable. The relative importance of the traffic on the fast, long interurban lines does not fully appear from the statistics of the number of fare passengers, since the average length of journey of passengers and the average fare paid by them on these railways are considerably greater than on urban railways. On the slower interurban lines included in the last column of Table 11, it is frequently the practice to collect separate 5-cent fares for different stages of a journey, so that a single passenger may be reported two or more times; but this practice does not usually prevail on the faster interurban lines, where the business is conducted more in the manner of a steam railway.

The use of free transfers is naturally more developed in great cities having many interlacing street railway lines than in small towns, where cars often run over only a single route, or on interurban railways. The free transfers of elevated railways are not reported, even when they are allowed. In judging the extent to which the transfer system is developed in cities of different sizes, it is preferable to confine attention to full-time electric surface railways without commercial lighting.

For such railways the proportion of free transfers to fare passengers for the largest urban centers, 28.2 per cent, is about the same as for those of the second group, 27.8 per cent. The corresponding proportions

of transfer to fare passengers on railways falling within the other groups are as follows: Urban centers of 25,000 to 100,000 inhabitants, 18.1 per cent; urban centers of less than 25,000 inhabitants, 8.5 per cent; fast, long interurban lines, 10.8 per cent; other interurban lines, 13.7 per cent.

*Relation of traffic to population as affected by size of cities.*—The influence of the size of cities served by street railways on the amount of their business can be measured only by comparing the number of passengers within each of the urban groups in Table 11 with the aggregate population of the group. Such a comparison, however, is difficult, since many railways that are primarily urban in character extend into rural communities, though serving only an unknown fraction of the population of such communities, while roads that are essentially interurban in character also carry urban passengers. These complexities are so conspicuous in the case of the smaller cities and towns that it is impossible to make a satisfactory comparison between traffic and population for the two groups of urban centers of less than 100,000 population as a whole. From these two groups, however, a considerable number of typical urban centers have been selected, in which the largest part of the street railway traffic lies within municipal limits. The names of the centers thus selected and the population and traffic in each are shown in Tables 13 and 14.

TABLE 13.—*Relation of trackage and traffic to population in selected urban centers with population of from 25,000 to 100,000: 1902.*

| NAME OF CENTER. | Population of center. | NUMBER OF PASSENGERS. | | NUMBER OF MILES OF TRACK. | |
|---|---|---|---|---|---|
| | | Total. | Per unit of population. | Total. | Per 1,000 of population. |
| Total | 1,258,615 | 135,842,312 | 107.9 | 951.93 | 0.76 |
| Montgomery, Ala | 30,346 | 1,849,395 | 60.9 | 20.00 | 0.66 |
| Little Rock, Ark | 38,307 | 3,841,415 | 100.3 | 20.70 | 0.54 |
| Sacramento, Cal | 29,282 | 3,948,791 | 134.9 | 23.50 | 0.80 |
| Pueblo, Colo | 28,157 | 4,065,162 | 144.4 | 36.25 | 1.29 |
| Meriden, Wallingford, Conn | 31,033 | 2,589,737 | 83.5 | 19.50 | 0.63 |
| Augusta, Summerville, Ga | 42,686 | 2,360,674 | 55.3 | 31.02 | 0.73 |
| Peoria, Averyville, North Peoria, Peoria Heights, Ill | 60,340 | 6,750,000 | 111.9 | 41.25 | 0.68 |
| Quincy, Ill | 36,252 | 2,127,623 | 58.7 | 17.38 | 0.48 |
| Rockford, Ill | 31,051 | 1,989,080 | 64.1 | 23.00 | 0.74 |
| Springfield, Ridgely, Ill | 35,328 | 3,532,013 | 100.0 | 23.83 | 0.67 |
| Evansville, Howell, Ind | 60,428 | 3,629,534 | 60.1 | 30.50 | 0.50 |
| Dubuque, Iowa | 36,297 | 2,391,355 | 65.9 | 20.85 | 0.57 |
| Sioux City, Iowa; South Sioux City, Nebr | 34,000 | 4,138,944 | 121.7 | 43.00 | 1.26 |
| Topeka, Kans | 33,608 | 2,730,287 | 81.2 | 28.63 | 0.85 |
| Lexington, Ky | 26,369 | 2,350,682 | 89.1 | 15.13 | 0.57 |
| Bay City, West Bay City, Essexville, Mich | 42,386 | 1,986,982 | 46.9 | 23.30 | 0.55 |
| Duluth, Minn.; Superior, Wis | 84,060 | 9,418,517 | 112.0 | 73.84 | 0.88 |
| Dayton, Ohio | 85,333 | 14,667,094 | 171.9 | 52.88 | 0.62 |
| Springfield, Ohio | 38,253 | 3,784,338 | 98.9 | 28.13 | 0.74 |
| Altoona, Gaysport, Juniata, Bellwood, Pa | 46,034 | 4,759,279 | 103.4 | 27.50 | 0.60 |
| Williamsport, South Williamsport, Pa | 32,085 | 2,582,297 | 80.5 | 16.41 | 0.51 |
| Dallas, Tex | 42,638 | 6,574,773 | 154.2 | 46.30 | 1.09 |
| Galveston, Tex | 37,789 | 2,851,603 | 75.5 | 35.86 | 0.95 |
| San Antonio, Tex | 53,321 | 5,268,627 | 98.8 | 45.51 | 0.85 |
| Salt Lake City, Murray, Utah | 56,833 | 10,631,591 | 187.1 | 78.04 | 1.37 |
| Richmond, Va | 85,050 | 16,313,560 | 191.8 | 43.96 | 0.52 |
| Spokane, Wash | 36,848 | 5,028,388 | 136.5 | 36.55 | 0.99 |
| La Crosse, Onalaska, Wis | 30,263 | 1,706,728 | 56.4 | 17.11 | 0.57 |
| Oshkosh, Neenah, Wis | 34,238 | 1,973,843 | 57.7 | 32.00 | 0.93 |

TABLE 14.—*Relation of trackage and traffic to population in selected urban centers with population of less than 25,000: 1902.*

| NAME OF CENTER. | Population of center. | NUMBER OF PASSENGERS. | | NUMBER OF MILES OF TRACK. | |
|---|---|---|---|---|---|
| | | Total. | Per unit of population. | Total. | Per 1,000 of population. |
| Total | 718,254 | 49,179,495 | 68.5 | 485.95 | 0.68 |
| Fort Smith, Ark | 11,587 | 731,553 | 63.1 | 8.93 | 0.77 |
| Riverside, Cal | 7,973 | 547,051 | 68.6 | 9.52 | 1.19 |
| San Diego, Cal | 17,700 | 2,220,000 | 125.4 | 16.60 | 0.94 |
| Santa Barbara, Cal | 6,587 | 814,405 | 123.6 | 8.50 | 1.29 |
| New London, Conn | 17,548 | 1,320,791 | 75.3 | 8.51 | 0.48 |
| Stamford, Greenwich, Conn | 18,417 | 1,327,617 | 72.1 | 12.69 | 0.69 |
| Pensacola, Fla | 17,747 | 998,290 | 56.2 | 9.00 | 0.51 |
| Athens, Ga | 10,245 | 356,969 | 34.8 | 6.53 | 0.64 |
| Alton, North Alton, Upper Alton, Ill | 17,487 | 1,497,130 | 85.6 | 12.25 | 0.70 |
| Cairo, Ill | 12,566 | 870,838 | 69.3 | 9.67 | 0.77 |
| Kankakee, Bradley, Bourbonnais, Ill | 15,708 | 714,769 | 45.5 | 12.78 | 0.81 |
| Vincennes, Ind | 10,249 | 450,000 | 43.9 | 8.00 | 0.78 |
| Burlington, Iowa | 23,201 | 1,600,000 | 69.0 | 14.50 | 0.62 |
| Muscatine, Iowa | 14,073 | 865,120 | 61.5 | 8.60 | 0.61 |
| Ottumwa, Iowa | 18,197 | 1,211,028 | 66.6 | 10.00 | 0.55 |
| Atchison, Kans | 15,722 | 533,867 | 34.0 | 9.00 | 0.57 |
| Wichita, Kans | 24,671 | 1,460,000 | 59.2 | 18.50 | 0.75 |
| Shreveport, La | 16,013 | 1,450,000 | 90.6 | 8.80 | 0.55 |
| Biddeford, Saco, Me | 22,267 | 728,909 | 32.7 | 8.15 | 0.37 |
| Benton Harbor, St. Joseph, Mich | 11,717 | 1,198,826 | 102.3 | 10.50 | 0.90 |
| Marquette, Mich | 10,058 | 373,672 | 37.2 | 7.00 | 0.70 |
| Menominee, Mich | 12,818 | 529,764 | 41.3 | 6.71 | 0.52 |
| Vicksburg, Miss | 14,834 | 1,188,289 | 80.1 | 8.75 | 0.59 |
| Springfield, Mo | 23,267 | 1,700,715 | 73.1 | 19.10 | 0.82 |
| Great Falls, Mont | 14,930 | 939,436 | 62.9 | 11.90 | 0.80 |
| Concord, N. H | 19,632 | 1,510,856 | 77.0 | 12.71 | 0.65 |
| Laconia, N. H | 8,042 | 436,171 | 54.2 | 8.87 | 1.10 |
| Long Branch, Deal, Allenhurst, Asbury Park, Bradley Beach, Neptune City, Belmar, N. J | 16,148 | 3,737,541 | 231.4 | 23.68 | 1.47 |
| Perth Amboy, Metuchen, N. J | 19,485 | 880,128 | 45.2 | 9.06 | 0.46 |
| Dunkirk, Fredonia, N. Y | 15,743 | 681,770 | 43.3 | 7.00 | 0.44 |
| Kingston, N. Y | 24,535 | 2,217,334 | 90.4 | 9.16 | 0.37 |
| Ogdensburg, N. Y | 12,633 | 478,283 | 37.9 | 10.00 | 0.79 |
| Ashtabula, Ohio | 12,949 | 999,857 | 77.2 | 5.75 | 0.44 |
| Lima, Ohio | 21,723 | 1,375,979 | 63.3 | 18.55 | 0.85 |
| Tiffin, Ohio | 10,989 | 482,000 | 43.9 | 7.33 | 0.67 |
| Zanesville, Ohio | 23,538 | 1,800,000 | 76.5 | 10.00 | 0.42 |
| Sayre, Athens, Pa.; Waverly, N. Y | 9,481 | 1,059,507 | 111.8 | 9.11 | 0.96 |
| Tarentum, New Kensington, Pa | 10,137 | 622,447 | 61.4 | 6.61 | 0.65 |
| Greenville, S. C | 11,860 | 537,603 | 45.3 | 7.00 | 0.59 |
| Austin, Tex | 22,258 | 1,213,703 | 54.5 | 13.38 | 0.60 |
| Waco, Tex | 20,686 | 1,605,525 | 77.6 | 16.29 | 0.79 |
| Ogden, Utah | 16,313 | 861,910 | 52.8 | 11.00 | 0.67 |
| Burlington, Winooski, Vt | 22,423 | 1,270,136 | 56.6 | 11.22 | 0.50 |
| Everett, Wash | 7,838 | 971,650 | 124.0 | 9.65 | 1.23 |
| Ashland, Wis | 13,074 | 503,658 | 38.5 | 7.68 | 0.59 |
| Janesville, Wis | 13,185 | 304,398 | 23.1 | 7.41 | 0.56 |

The totals for the selected towns are shown in Table 15, which also presents a comparison of population and traffic for the two groups of urban centers of more than 100,000 population, the statistics including all the cities of each group. The details for individual cities of these two groups are given on page 24.

TABLE 15.—*Relation of trackage and traffic to population in groups of urban centers: 1902.*

| | All centers over 500,000 population. | All centers of 100,000 but under 500,000 population. | Twenty-nine selected centers of 25,000 but under 100,000 population. | Forty-six selected centers of less than 25,000 population. |
|---|---|---|---|---|
| Total population served | 10,274,470 | 5,380,647 | 1,258,615 | 718,254 |
| Number of miles of track | 4,998.89 | 3,559.82 | 951.93 | 485.95 |
| Miles of track per 1,000 of population | .49 | .66 | .76 | .68 |
| Number of passengers | 2,456,542,270 | 994,827,853 | 135,842,312 | 49,179,495 |
| Number of rides per inhabitant | 239.1 | 184.7 | 107.9 | 68.5 |

The totals of population and traffic for the four groups present a fairly correct view of the density of street railway traffic in its relation to the size of cities. The table also shows the relation of trackage to population. A discussion of the relation between population and traffic in the case of interurban railways will be found in Part I, Chapter VII.

The proportion of street railway trackage to the population is considerably less in cities of over 500,000 population than in other cities. In the largest cities, with their closely built houses and tenements, the number of inhabitants tributary to a given trackage is greater than in smaller cities, even though street railways in the more thickly populated parts of these large cities may be run on almost every street. In the smallest cities, however, the total populated area is so restricted that a large proportion of the people find little occasion to use street railways at all, and so the proportion of trackage to population is not materially different from that in cities of from 100,000 to 500,000 inhabitants, though the population of smaller cities is much more scattered. Indeed, the trackage per 1,000 inhabitants in selected centers of less than 25,000 inhabitants is actually less than that reported for centers of from 25,000 to 100,000 inhabitants.

As the size of the urban center diminishes the number of street railway rides per inhabitant decreases rapidly. In cities of more than 500,000 inhabitants each person, on the average, rode 239 times during the year, while in the selected centers of less than 25,000 inhabitants each person rode, on the average, only 68 times during the year. In comparing passengers with population in the larger cities it should be borne in mind that the great numbers of transient visitors to such cities, who are not enumerated in the census of population, contribute materially to the street railway traffic. Due allowance for this fact having been made, it yet remains true that the permanent residents of such cities patronize the railways much more than the inhabitants of small towns. The reason for this fact is obvious. As cities increase in size a constantly greater proportion of the people, despite the crowding together, live far from their places of business and are forced to use the street railway daily.

*Density of traffic per mile of track.*—In comparing the number of passengers per mile of track in urban centers of different sizes, as shown in Tables 11 and 12, it should be borne in mind that the average distance traveled by passengers is greater in the large cities than in those of smaller population. Despite this fact, the proportion of fare passengers carried to track mileage increases very rapidly as the size of urban centers increases. In urban centers of the first group the railways, as a whole, in 1902 carried 491,418 fare passengers per mile of track, while the full-time electric surface railways, without commercial lighting, as shown in Table 12, carried 446,527 fare passengers per mile. The traffic on such electric surface lines in urban centers of 100,000 to 500,000 population is only about three-fifths as dense; in centers of 25,000 to 100,000 inhabitants, about one-third as dense; and in still smaller urban centers, about one-fifth as dense, as on similar railways in the largest cities.

The number of fare passengers per mile of track on fast, long interurban lines, without commercial lighting, operating the entire year, was 38,226, and on other interurban lines covered by Table 12, 101,593. On the fast, long interurban railways the average ride of passengers, however, is decidedly longer than on urban railways.

Averages for density of traffic might be vitiated by the undue influence of a few companies having extremely high or extremely low density of traffic. To guard against such errors Table 16 has been prepared, which shows the number of street railways within each population group reporting traffic of different degrees of density.

TABLE 16.—*Distribution of full-time electric surface railway companies without commercial lighting, in the various population groups, according to number of fare passengers carried per mile of track operated: 1902.*[1]

| PASSENGERS PER MILE OF TRACK. | Total. | NUMBER OF COMPANIES. | | | | | |
|---|---|---|---|---|---|---|---|
| | | Urban centers, population. | | | | Interurban railways. | |
| | | 500,000 and over. | 100,000 to 500,000. | 25,000 to 100,000. | Under 25,000. | Fast, long. | Other. |
| Total | 568 | 48 | 38 | 68 | 168 | 42 | 204 |
| Under 25,000 | 72 | 4 | ..... | 2 | 8 | 17 | 41 |
| 25,000 but under 50,000 | 86 | 1 | 1 | 3 | 23 | 14 | 44 |
| 50,000 but under 100,000 | 191 | 10 | 3 | 13 | 75 | 10 | 80 |
| 100,000 but under 200,000 | 150 | 13 | 7 | 40 | 54 | 1 | 35 |
| 200,000 but under 300,000 | 36 | 3 | 15 | 8 | 6 | ..... | 4 |
| 300,000 but under 400,000 | 16 | 4 | 8 | 2 | 2 | ..... | ..... |
| 400,000 and over | 17 | 13 | 4 | ..... | ..... | ..... | ..... |

[1] Exclusive of reports for 2 companies carrying freight only and 2 companies which failed to furnish this information.

The table includes only full-time companies operating primarily electric surface railways, and not furnishing commercial lighting. The companies, of course, differ greatly in the amount of track operated. Thus there are in some of the large cities a considerable number of small railway lines, usually in the outskirts, the traffic of which is insignificant as compared with that of the one or more great systems which serve the larger part of the population. For this reason, while the average number of passengers per mile for all full-time electric surface railways without lighting plants in urban centers of more than 500,000 population was 446,527, only 13 of the 48 such companies had more than 400,000 fare passengers per mile of track. These 13 companies, however, operated 2,486.69 miles of track, or 52.7 per cent of the mileage for the entire group.

Only 4 of the 38 companies operating in urban centers of from 100,000 to 500,000 inhabitants showed more than 400,000 fare passengers per mile, and these

4 companies reported only 347.84 miles of track, or less than 10 per cent of the total for the entire group. On the other hand, 15 companies, with 45.6 per cent of the entire trackage of the group, fall within the limits of 200,000 to 300,000 fare passengers per mile of track. The average number of fare passengers for all full-time electric surface railways without lighting plants, in cities of this group, 277,509 per mile, thus corresponds fairly with the figures for a large proportion of the companies and the larger part of the trackage.

In cities of from 25,000 to 100,000 population there are no electric surface railways with more than 400,000 fare passengers per mile, and only 10 with more than 200,000, while 40 out of the 68 companies carried between 100,000 and 200,000 fare passengers per mile. Here again, then, the proportion for the larger number of companies corresponds broadly to the arithmetical average for the group as a whole, 150,739 passengers per mile.

Only 8 of the 168 full-time electric surface companies in urban centers of less than 25,000 population reported more than 200,000 fare passengers per mile of track, while 75 of the companies carried between 50,000 and 100,000 passengers per mile of track. The average for the entire group, 95,204, is thus seen to correspond fairly with the ratio of passengers to trackage in the case of a large proportion of the companies in the group. Much the larger proportion of interurban railways of both classes carried, in 1902, less than 100,000 passengers per mile of track, and a considerable number of companies in each of these groups reported less than 25,000 passengers per mile of track.

Further information in regard to the relation of density of traffic to population may be gained from the statistics for individual urban centers presented in Tables 13, 14, and 19.

Of the 8 centers of more than 500,000 population, 3 show more than 400,000 fare passengers per mile of track, and all but Baltimore show more than 300,000. Of the 24 urban centers of from 100,000 to 500,000 population, only 3 report less than 200,000 passengers per mile, and only 2 show more than 400,000. Of the 29 selected urban centers of from 25,000 to 100,000 population, 9 have less than 100,000 passengers per mile of track, and only 2 have more than 200,000. Of the 46 selected towns of less than 25,000 inhabitants, 27 show less than 100,000 passengers per mile of single track, and only 6 report more than 150,000.

*Car mileage.*—The figures showing the number of car miles run in urban centers of different sizes and on interurban railways (Tables 11 and 12), require no special comment. The relation of car mileage to trackage and to passengers carried is more significant, although comparisons between different population groups are rendered uncertain by the great difference in the size of cars. The proportion of car mileage to the length of track naturally increases, like the proportion of passengers to trackage, as the population of the area served increases. The number of car miles per mile of track for companies of all classes ranges from 28,840 in centers of less than 25,000 population to 104,554 in centers of more than 500,000 population. On interurban railways, particularly those of the fast, long class, larger cars are run than in cities, a fact which accounts, though of course only in part, for the smaller number of car miles per mile of track.

*Passengers per car mile.*—The average number of fare passengers per passenger-car mile on all street railways in urban centers of more than 500,000 inhabitants was 58 per cent more than the average for urban centers of less than 25,000, the figures being 4.87 and 3.07, respectively. For full-time electric surface railways, without commercial lighting, the largest urban centers show 4.92 fare passengers per passenger-car mile, and the smallest 3.26. Between the two extremes there is a steady gradation in the density of traffic per car mile.

Naturally these proportions do not show such wide differences between the groups of urban centers as appear in regard to density of traffic per mile of track, since the number of cars can be adjusted rather closely to the amount of patronage. It is probable that as between the largest cities and the smallest urban centers there is as great a difference in the average size of cars as in the number of passengers per car mile. The effect of this difference in size, however, is almost beyond question fully counteracted by the longer average rides of passengers in great cities. The statistics of passengers per car mile, therefore, seem to indicate that the cars are more generally crowded in large cities than in smaller towns, a point which is borne out by common observation. The ratio of passengers to car mileage on fast, long interurban railways as a group can not properly be compared with the similar ratios for urban lines.

Table 17 shows, by population groups, the number of full-time electric surface railway companies, without commercial lighting plants, reporting specified numbers of fare passengers per passenger-car mile.

When the relative length of track operated by each company is taken into account, the figures confirm in a general way the conclusion, drawn from the averages in Table 12, that the number of passengers per car mile is greater in the large urban centers than in the small ones and greater on urban lines than on interurban lines. While only 18 of the 48 companies in urban centers of more than 500,000 population report 4 or more passengers per car mile, these companies have 3,612.35 miles of track, or 77 per cent of the total mileage for the group. A detailed examination of the other data in Table 17 will show that the average number of passengers per car mile for all railways of this class, in the various other population groups, corresponds fairly well with the actual ratio reported by the greater number of companies in the respective groups.

TABLE 17.—*Distribution of full-time electric surface railway companies without commercial lighting, in the various population groups, according to number of fare passengers carried per passenger-car mile: 1902.*[1]

| PASSENGERS PER CAR MILE. | NUMBER OF COMPANIES. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total. | Urban centers, population. | | | | Interurban railways. | |
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Total | 568 | 48 | 38 | 68 | 168 | 42 | 204 |
| Under 1 | 4 | 2 | ..... | ..... | ..... | 1 | 1 |
| 1 but under 2 | 83 | 4 | ..... | 4 | 24 | 21 | 30 |
| 2 but under 3 | 146 | 10 | 6 | 18 | 58 | 9 | 45 |
| 3 but under 4 | 174 | 14 | 16 | 18 | 47 | 5 | 74 |
| 4 but under 5 | 98 | 6 | 11 | 21 | 20 | 4 | 36 |
| 5 but under 6 | 41 | 5 | 5 | 6 | 11 | 2 | 12 |
| 6 but under 7 | 14 | 5 | ..... | 1 | 4 | ..... | 4 |
| 7 and over | 8 | 2 | ..... | ..... | 4 | ..... | 2 |

[1] Exclusive of reports for 2 companies carrying freight only, and 2 companies which failed to furnish this information.

*Mileage of freight, mail, express, and other miscellaneous cars.*—For all classes of companies the greatest absolute mileage run by freight, mail, express, and other cars, including steam locomotives, as shown by Table 11, is found in urban centers of more than 500,000 population, the distance covered by such cars in these centers being 17,842,405 miles, or 3.4 per cent of the total of the car mileage for this group. Of this mileage 15,201,575 miles represent the distance traveled by steam locomotives on the elevated lines in New York and Brooklyn. The mileage of freight, mail, express, and other nonpassenger cars on street railways in urban centers of from 100,000 to 500,000 population and in urban centers of from 25,000 to 100,000 population is, in each case, less than 0.4 per cent of the total car mileage, and in centers of less than 25,000 inhabitants, less than 1 per cent. On fast, long interurban railways the mail, and still more, the freight and express traffic, are relatively much more important than on urban lines. The mileage run by other than passenger cars on such fast, long interurban railways was 3.7 per cent of their total car mileage in 1902, and on the other group of interurban railways 1.9 per cent of the total. A single company, however, the Old Colony Railway, of Massachusetts, contributed 700,927 of freight, mail, express, and other car miles, or more than one-fourth of the total for the sixth group.

Some idea of the complexity of the business of modern large street railway systems may be gained from the following classified presentation of the statistics of car mileage of two of the leading companies of New York, the Brooklyn Rapid Transit Company and the Manhattan Elevated Railway Company, for the year ending June 30, 1902. The Brooklyn system reports a much greater variety of cars, for the reasons that it operates both surface and elevated lines and that it keeps its records in greater detail than the Manhattan Company.

*Detailed statistics of car mileage of Brooklyn Rapid Transit Company and Manhattan Railway Company.*

| CLASS OF CARS. | NUMBER OF CAR MILES. | |
|---|---|---|
| | Brooklyn Rapid Transit. | Manhattan (elevated) Railway. |
| Passenger cars: | | |
| Revenue | 52,684,980 | 44,631,618 |
| Light (nonrevenue) | 951,549 | 440,125 |
| Total | 53,636,529 | 45,071,743 |
| Miscellaneous cars: | | |
| Freight | 11,785 | ..... |
| Mail | 163,635 | ..... |
| Express | 159,662 | ..... |
| Foreign companies | 21,798 | ..... |
| Flat | 72,165 | 141,851 |
| Wrecking | 2,533 | ..... |
| Pay | 12,065 | 6,788 |
| School | 42,626 | ..... |
| Ash | 67,123 | ..... |
| Shop cars | ..... | 23,174 |
| Collectors and ticket cars | ..... | 31,449 |
| Sprinkling | 2,240 | ..... |
| Snowplows and sweepers | 2,305 | ..... |
| Sand | 4,596 | ..... |
| Other | 6,966 | ..... |
| Total | 569,499 | 203,262 |
| Engines (elevated): | | |
| Revenue | 3,386,394 | 10,191,148 |
| Light (nonrevenue) | 538,728 | 935,792 |
| Supply and miscellaneous | 58,616 | 90,897 |
| Total | 3,983,738 | 11,217,837 |
| Total mileage of all sorts | 58,189,766 | 56,492,842 |

A conspicuous feature of these statistics is the large amount of mileage of passenger cars and of locomotives in passenger service on the elevated lines from which no direct revenue is derived. Such "light" mileage occurs chiefly in the switching of cars, in running cars to the barns or terminals after their day's service is completed, and in taking the additional cars required during the rush hours to and from the part of the line where they are needed. The mileage of "light" cars is included in the passenger-car mileage in the general tables. The school cars mentioned are used for the instruction of motormen. The ash cars carry away the ashes from locomotives and from power-plant boilers. Flat cars and working cars of other sorts are used in conveying coal and other operating supplies and in construction and repair work.

*Car hours.*—The incompleteness of the returns of car hours makes it impossible to present an accurate comparison of the different groups of urban centers as regards the number of fare passengers carried per car hour operated. Some idea of the relative density of traffic as thus measured may be gained, however, from the statistics for selected companies. Of important surface railways in urban centers of more than 500,000 inhabitants only five keep records of car hours, three of these being in Chicago, one in Boston, and one in St. Louis. The number of passengers per car hour ranges from 26.99 for the Consolidated Traction Company, of Chicago, Ill., to 41.04 for the St. Louis Transit Company, of St. Louis, Mo. Fourteen of the leading railways in urban centers of from 100,000 to 500,000

population present these statistics, and with them the number of passengers per car hour ranges, on the face of their returns, from 12.62 for the Louisville Railway Company, of Louisville, Ky., to 64.34 for the St. Joseph Railway, Light, Heat, and Power Company, of St. Joseph, Mo. The figures for the other reporting companies in this group vary between 24.94 and 45.97. Fifteen of the selected companies—Table 13—in centers of from 25,000 to 100,000 population, and twenty of the selected companies—Table 14—in centers of less than 25,000 population also reported car-hour figures. For all electric surface companies reporting car hours in the first two groups of urban centers and for the selected companies in the other two urban groups the average numbers of passengers per car hour were respectively as follows: In urban centers of more than 500,000 inhabitants, 39.96; in centers of 100,000 to 500,000 inhabitants, 31.35; in centers of from 25,000 to 100,000 inhabitants, 25.42; in centers of less than 25,000 inhabitants, 24.04. The ratio of fare passengers to car hours appears, therefore, to increase regularly with increasing population.

*Accidents.*—The following table shows for all street railways, and separately for all full-time electric surface railways (including those with commercial lighting) classified according to population of the urban centers served, the number of persons killed and injured during the census year 1902, and the proportion which fatal accidents bear to car mileage:

TABLE 18.—ACCIDENTS ON RAILWAYS, CLASSIFIED ACCORDING TO POPULATION: 1902.

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| All street railways: | | | | | | | |
| Persons killed | [1] 1,217 | 491 | 221 | 124 | [1] 89 | 90 | 202 |
| Persons injured | 47,429 | 18,289 | 19,518 | 3,109 | 632 | 1,481 | 4,400 |
| Number of car miles run to each person killed | 940,370 | 1,064,468 | 1,089,424 | 933,676 | 721,234 | 523,092 | 762,228 |
| Electric surface full-time railways: | | | | | | | |
| Persons killed | [1] 1,164 | 460 | 220 | 119 | [1] 87 | 85 | 193 |
| Persons injured | 46,938 | 18,117 | 19,443 | 3,054 | 611 | 1,414 | 4,299 |
| Number of car miles run to each person killed | 892,475 | 944,333 | 1,080,480 | 934,993 | 695,140 | 516,448 | 782,914 |

[1] This number does not include one fatal accident on a railway not reporting car mileage. See also notes to Table 8.

While according to the returns more than twice as many persons were killed on street railways in urban centers of over 500,000 population as on those in centers of from 100,000 to 500,000 population, the number of injured reported was actually smaller. In the absence of detailed knowledge of local conditions, it is impossible to present any sufficient explanation of this wide discrepancy. It may be due in some measure to differences in the degree of completeness with which returns of injuries are made.

Taking the average for all railways, 940,370 car miles were run to each person killed. The risk of fatal accident was apparently least in cities of from 100,000 to 500,000 population. That it was somewhat greater in the largest urban centers than in urban centers of from 100,000 to 500,000 population is perhaps due to the greater crowding of the streets. The fact that the proportion of fatal accidents to car mileage was in 1902 higher in cities of 25,000 to 100,000 than in the larger cities, and still higher in cities of less than 25,000 population, is not readily explicable. There remains a large element of doubt as to whether the figures reported for the single year are typical of general conditions.

As might have been expected, the risk of fatal accidents was apparently considerably higher on fast, long interurban railways than elsewhere, one person being killed to each 523,092 car miles operated by such railways. The high speed maintained by interurban cars, combined with the inadequate protection of crossings and the often imperfect signaling devices, serve to explain, at least in part, this high proportion of fatal accidents.

## III.

### TRAFFIC AND TRACKAGE IN SELECTED URBAN CENTERS.

A more vivid picture of street railway conditions, and of the development which has taken place between the two census periods, can be obtained from the data for individual cities than can be gained from averages. Table 19 shows for 1890 and 1902 the length of track, the number of passengers carried, and the car mileage of street railways in each urban center having in 1900 more than 100,000 population. It shows also the relation of traffic to population at the two census periods and, for 1902 only, the ratio of passengers carried to trackage and to car mileage.

TABLE 19.—TRACKAGE AND TRAFFIC IN URBAN CENTERS OF 100,000 POPULATION AND OVER: 1902 AND 1890.

| URBAN CENTER. | POPULATION. | | MILES OF TRACK. | | MILES OF TRACK PER 1,000 POPULATION. | | FARE PASSENGERS CARRIED. | | PASSENGERS PER INHABITANT. | | PASSENGERS PER MILE OF TRACK. | | PASSENGER-CAR MILES. | PASSENGERS PER CAR MILE. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1902[1] | 1890 | 1902 | 1890 | 1902 | 1890 | 1902 | 1890 | 1902 | 1890 | 1902 | 1890 | 1902 | 1902 |
| Albany, Troy, Rensselaer, N. Y | 216,530 | 207,306 | 75.83 | 58.57 | 0.35 | 0.28 | 26,417,076 | 11,197,414 | 122 | 54 | 348,372 | 191,180 | 7,449,410 | 3.5 |
| Baltimore, Ellicott City, Md | 510,288 | 435,887 | 365.12 | 156.55 | .72 | .36 | 96,763,878 | 40,659,982 | 190 | 93 | 265,019 | 259,725 | 23,330,292 | 4.1 |
| Boston, Cambridge, Chelsea, Everett, Malden, Newton, Somerville, Brookline, Waltham, Mass. | 927,994 | 704,768 | 451.68 | 271.94 | .49 | .38 | 228,179,308 | 116,646,338 | 246 | 166 | 505,179 | 428,941 | 47,524,724 | 4.8 |
| Buffalo, Niagara Falls, Lockport, North Tonawanda, N. Y | 421,694 | 302,373 | 320.48 | 72.27 | .76 | .24 | 74,136,881 | 17,244,388 | 176 | 57 | 231,331 | 238,611 | 17,290,756 | 4.3 |
| Chicago, Ill.; Hammond, Ind | 1,769,951 | 1,136,846 | 1,036.24 | 390.33 | .58 | .34 | 410,284,094 | 180,326,470 | 232 | 159 | 395,935 | 461,985 | 102,366,407 | 4.0 |
| Cincinnati, Ohio; Newport, Covington, Ky | 429,137 | 370,850 | 263.57 | 147.80 | .61 | .40 | 86,208,384 | 41,440,045 | 201 | 112 | 327,080 | 280,379 | 23,940,175 | 3.6 |
| Cleveland, Ohio, and vicinity | 405,359 | 264,114 | 237.04 | 158.88 | .58 | .60 | 81,370,202 | 39,164,773 | 201 | 148 | 343,276 | 246,505 | 18,768,515 | 4.3 |
| Columbus, Ohio, and vicinity | 127,022 | 89,479 | 106.43 | 34.75 | .84 | .39 | 26,489,927 | 8,202,662 | 208 | 92 | 248,895 | 236,048 | 5,619,476 | 4.7 |
| Denver, Colo | 133,859 | 106,713 | 149.77 | 130.75 | 1.12 | 1.22 | 31,085,443 | 21,535,735 | 232 | 202 | 207,554 | 164,709 | 6,458,908 | 4.8 |
| Indianapolis, Ind | 169,164 | 105,436 | 109.86 | 70.00 | .65 | .66 | 30,005,026 | 9,863,000 | 177 | 94 | 273,120 | 140,900 | 6,921,490 | 4.3 |
| Jersey City, Elizabeth, Hoboken, Paterson, Passaic, Newark, Bayonne, Orange, N. J | 969,736 | 666,389 | 463.54 | 178.59 | .48 | .27 | 148,094,623 | 47,039,699 | 153 | 70 | 314,639 | 263,395 | 24,589,773 | 6.0 |
| Kansas City, Independence, Mo.; Kansas City, Argentine, Rosedale, Kans | 237,042 | 188,573 | 181.24 | 143.08 | .76 | .76 | 57,148,083 | 41,669,894 | 241 | 221 | 315,317 | 291,235 | 15,979,864 | 3.6 |
| Los Angeles, Pasadena, Santa Ana, Orange, Cal | 118,746 | 60,394 | 164.16 | 144.79 | 1.38 | 2.40 | 30,803,086 | 10,524,966 | 259 | 174 | 187,641 | 72,691 | 9,533,269 | 3.2 |
| Louisville, Ky | 204,731 | 161,129 | 147.13 | 128.00 | .72 | .79 | 34,503,388 | 21,281,584 | 168 | 132 | 234,510 | 166,262 | 9,566,844 | 3.6 |
| Memphis, Tenn | 102,981 | 64,634 | 71.88 | 46.00 | .70 | .71 | 16,598,823 | 4,300,000 | 161 | 66 | 230,924 | 93,478 | 3,653,631 | 4.5 |
| Milwaukee, Whitefish Bay, Wauwatosa, Wis | 301,701 | 212,557 | 145.50 | 97.06 | .48 | .46 | 46,974,373 | 14,512,156 | 156 | 68 | 322,848 | 149,517 | 9,143,023 | 5.1 |
| Minneapolis, St. Paul, Stillwater, Minn | 378,923 | 309,841 | 251.02 | 158.79 | .66 | .51 | 63,009,957 | 26,357,532 | 166 | 85 | 251,016 | 165,990 | 12,895,343 | 4.9 |
| New Orleans, La | 287,104 | 242,039 | 180.31 | 153.14 | .63 | .63 | 53,184,273 | 30,510,662 | 185 | 126 | 294,960 | 199,234 | 17,810,169 | 3.0 |
| New York, Yonkers, White Plains, Mt. Vernon, New Rochelle, Pelham, N. Y | 3,548,096 | 2,564,403 | 1,299.10 | 775.78 | .37 | .30 | 943,687,316 | 600,413,862 | 266 | 234 | 726,416 | 773,949 | 180,499,539 | 5.2 |
| Oakland, Alameda, Berkeley, Hayward, Emeryville, Cal | 101,872 | 66,595 | 122.80 | 17.98 | 1.20 | .27 | 17,247,022 | 2,807,956 | 169 | 42 | 140,448 | 156,171 | 5,449,713 | 3.2 |
| Omaha, South Omaha, Dundee, Nebr.; Council Bluffs, Iowa | 155,268 | 169,988 | 105.95 | 119.03 | .68 | .70 | 21,418,791 | 13,613,283 | 138 | 80 | 202,159 | 114,368 | 6,373,697 | 3.4 |
| Philadelphia, Pa | 1,293,697 | 1,046,964 | 517.53 | 351.12 | .40 | .34 | 331,304,685 | 165,117,627 | 256 | 158 | 640,165 | 470,260 | 61,175,495 | 5.4 |
| Pittsburg, Allegheny, McKeesport, Bellevue, Sharpsburg, McKees Rocks, Carnegie, Wilkinsburg, Braddock, Homestead, Connellsville, Uniontown, Pa | 640,380 | 428,005 | 469.47 | 113.32 | .73 | .26 | 168,632,339 | 46,299,227 | 263 | 108 | 359,197 | 408,571 | 34,311,111 | 4.9 |
| Providence, Pawtucket, R. I | 268,946 | 205,923 | 137.05 | 59.48 | .51 | .29 | 45,163,704 | 18,473,722 | 168 | 90 | 329,542 | 310,587 | 8,016,662 | 5.6 |
| Rochester, Irondequoit, N. Y | 178,333 | 148,899 | 95.86 | 62.17 | .54 | .42 | 20,171,260 | 11,372,596 | 113 | 76 | 210,424 | 182,927 | 5,196,819 | 3.9 |
| St. Joseph, Mo | 102,979 | 52,324 | 35.15 | 22.88 | .34 | .44 | 8,534,278 | 2,014,868 | 83 | 38 | 242,796 | 88,062 | 2,198,630 | 3.9 |
| St. Louis, Mo.; East St. Louis, Granite, Ill | 614,328 | 468,087 | 396.21 | 169.22 | .64 | .36 | 129,596,027 | 63,299,479 | 211 | 135 | 327,089 | 374,066 | 31,014,097 | 4.2 |
| San Francisco, San Mateo, Cal | 344,614 | 298,997 | 276.50 | 156.22 | .80 | .52 | 117,357,877 | 80,619,005 | 340 | 270 | 424,441 | 516,061 | 20,553,252 | 5.7 |
| Scranton, Dunmore, Olyphant, Jermyn, Carbondale, Pa | 155,655 | 112,385 | 76.68 | 30.00 | .49 | .27 | 8,331,663 | 3,023,493 | 54 | 27 | 108,655 | 100,783 | 2,322,162 | 3.6 |
| Syracuse, Onondaga, Geddes, De Witt, N. Y | 123,776 | 99,409 | 68.16 | 44.13 | .55 | .44 | 14,234,508 | 6,437,197 | 115 | 65 | 208,840 | 145,869 | 3,704,195 | 3.8 |
| Toledo, Ohio | 135,271 | 85,505 | 97.78 | 42.00 | .72 | .49 | 20,104,076 | 5,656,813 | 149 | 66 | 205,605 | 134,686 | 5,517,484 | 3.6 |
| Washington, D. C | 279,940 | 231,901 | 139.67 | 83.00 | .50 | .36 | 63,829,752 | 31,032,187 | 228 | 134 | 457,004 | 373,882 | 15,577,212 | 4.1 |

[1] Population shown for 1902 is that reported at the census of 1900.

As most of the cities increased materially in population during the two years between the 1900 census of population and that of street railways, the apparent increase in the proportion of trackage and traffic to population since 1890 is somewhat exaggerated.

The method of selecting the areas which should be considered as a single urban center in preparing this table has been described in Part I, Chapter I. Attention was there called to the fact that, because of the complications arising where urban railways extend into rural districts, or where part of the strictly urban traffic is carried by railways that are primarily interurban, comparisons between cities in respect to the proportions which trackage and traffic bear to population are not exact. Nevertheless, except with regard to two or three cities which have been omitted from the table, the data, especially those showing traffic, are not sufficiently affected by these complications to vitiate conclusions.

*Relation of trackage to population.*—In 1890 the development of street railway service, as shown by the amount of trackage constructed, varied widely in different cities. In a few urban centers new electric systems had recently been installed and trackage had increased considerably, but in other cities the limits of the horse railway had not yet been escaped. During the interval between the two census periods most of the cities which had been more backward in street railway enterprise made a rapid advance, so that at present the proportion of trackage to population is more nearly uniform than it was in 1890. Some of the urban centers, therefore, show a great increase in the length of track per 1,000 inhabitants since 1890, while others show little increase, and 8 of the 32 cities even show a a decrease, which, however, with a single exception, is slight.

The extension of the leading railway system of Buffalo, N. Y., to Lockport and Niagara Falls, N. Y., and other neighboring places, accounts in part for the conspicuous increase in the ratio of trackage to population in that urban center. Similar suburban and interurban extensions also explain in large measure the marked addition to trackage in the great iron and steel center

of which Pittsburg, Pa., is the leading city, and in Oakland, Cal., and vicinity.

In two of the very largest cities, New York and Philadelphia, the rate of increase in trackage since 1890 has been only about one-fifth greater than that in population. This is primarily because the tremendous demand for rapid transit in these cities had forced a greater development of street railways even in 1890 than was found in many of the less densely populated urban centers. In Chicago, however, the proportion of trackage to inhabitants increased about 70 per cent during the interval between the two census periods. The only urban center which shows a conspicuous decline in the proportion of trackage to population since 1890 is that of Los Angeles, Cal., and the neighboring municipalities. In 1890 there were no less than 2.4 miles of track for each 1,000 inhabitants in that center, a much greater proportion than was found in any other. This extreme development was doubtless attributable in part to the boom then prevailing in southern California. Street railways were built partly in the expectation that great cities would grow up throughout the section, and partly with the purpose of facilitating the sale of real estate. The street railways of this urban area carried three times as many passengers in 1902 as in 1890, but their trackage had increased by only one-seventh, while the population had nearly doubled.

In comparing the different urban centers at the present time it may be observed that length of track is a less accurate measure of street railway development than the number of passengers carried or the car mileage operated. The amount of track required to serve adequately the needs of the people depends largely on the density of population and the topographical conditions of the city. Thus, largely because of the dense population in New York city, the proportion of trackage to population there is lower than in any other urban area except Albany and Troy, N. Y., and St. Joseph, Mo. Philadelphia and Boston also show considerably less track per 1,000 inhabitants than most of the smaller cities. The population of Chicago is more scattered than that of the large cities just named, and it has, therefore, a larger proportion of trackage to population. The greatest length of street railway track per 1,000 of population is found in the western cities, Denver, Colo., and Oakland and Los Angeles, Cal. This is explained by their scattered population and also by the fact that the companies operating there have a considerable suburban and interurban trackage.

*Relation of traffic to population.*—While many urban centers of more than 100,000 inhabitants show little increase, and some show an actual decrease, in the ratio of trackage to inhabitants since 1890, there is no center in which the proportion of street railway passengers to inhabitants has not increased, and there are few in which the increase has not been a large one.

The slightness of the increase in the proportion of passengers to population in New York city is in part explained in another part of this report (see pages 31 to 38 passim). Up to the present time the railways of that city have not been able fully to meet the demand for transportation. In a few other cities in which street railway traffic was most fully developed in 1890 the increase in the proportion of passengers to inhabitants also has been slight. Denver, Colo., and Kansas City, Mo., are conspicuous instances.

On the other hand, Baltimore, Philadelphia, Boston, Chicago, and Pittsburg-Allegheny, among urban centers of more than 500,000 population, show a very marked increase in the proportion of passengers to inhabitants. In 1890 a large part of the railway systems of Chicago, Pittsburg, and Philadelphia was still operated by horsepower. The subsequent increase in traffic is, therefore, partly due to the superior convenience of electric traction. The number of rides per inhabitant in Pittsburg and vicinity was 108 in 1890 and 263 in 1902. Another illustration of the increase in traffic that has followed the introduction of electricity is seen in Baltimore, where in 1890, with a system confined almost entirely to horse cars, there were but 93 passengers per inhabitant, while in 1902, the system having become entirely electric, 190 rides per inhabitant were reported. Several smaller cities, which were almost wholly dependent on horse cars in 1890, also present very marked increases in the density of traffic. Altogether there are 12 out of the 32 centers in which the proportion of passengers to population doubled between 1890 and 1902.

Other conditions being equal, the extent to which the people of a city will patronize its street railways will depend largely on the size of the city. This is borne out by the figures in Table 19. The rank of the cities in 1902, as regards the ratio of passengers to inhabitants, bears a rough parallelism to their rank in population. Other factors, however, also influence the relative amount of street railway traffic, among which are the shape and general topographical features of the city, especially the presence or absence of hills; the density of population per unit of area; and the situation of the business sections with reference to the residence sections. The average wealth of the masses of the people and their habits and customs of life also affect their patronage of the street railways.

Of the 8 urban centers of more than 500,000 population, 7 show little difference in the degree of street railway patronage, the range being only from 190 to 266 rides per inhabitant. The eighth of the urban centers of this class, showing only 150 rides per inhabitant, consists of the neighboring cities of northern New Jersey and differs from the others in material characteristics.

San Francisco, though falling in the second group of urban centers, has by far the largest ratio of street railway rides to inhabitants. On the average, each inhabitant of that city took about one ride per day during 1902. The city abounds in steep hills, and the manu-

facturing and commercial interests are mostly centralized within a small area, while the residence section is extensive and comparatively thinly populated.

Among the centers of less than 500,000 population, Los Angeles, Cal., Kansas City, Mo., and Washington, D. C., follow San Francisco in the ratio of passengers to inhabitants. The patronage of street railways is least per inhabitant in the Scranton, Pa., center. The low ratio is probably due to the fact that the patronage comes largely from a mining population, with a low average of per capita wealth and with residences near the place of work. St. Joseph, Mo., Rochester, and Albany-Troy, N. Y., are also conspicuous for the small degree of street railway patronage.

*Passengers per mile of track.*—The column in Table 19 indicating the number of passengers carried per mile of track in the largest urban centers needs little comment.

With seven exceptions the number of passengers carried per mile of track in these 32 urban centers has increased since 1890, and despite the fact that the average ride in practically all of the cities has doubtless lengthened materially during this period. The decline in the density of traffic per mile of track in Buffalo, New York city, Chicago, Pittsburg, St. Louis, San Francisco, and Oakland is attributable to the extension of railways into thinly populated parts of these cities and into suburban and rural districts where traffic is comparatively light. Beyond question in these, as in other cities, the traffic upon tracks which were already built in 1890 has increased since that time. If attention be confined to those cities in which the increase in trackage since 1890 has been relatively slight, a very great increase in the ratio of passengers to trackage appears in nearly every case. Thus, of the 12 urban centers named in Table 19, in which the length of track per 1,000 inhabitants did not increase more than one-fifth between 1890 and 1902, 4—Los Angeles, Cal., Memphis, Tenn., Milwaukee, Wis., and St. Joseph, Mo.—more than doubled the number of passengers per mile of track; 4 others—Indianapolis, Ind., Louisville, Ky., New Orleans, La., and Omaha, Nebr.—show an increase of more than 40 per cent; and 3 others—Denver, Colo., Cleveland, Ohio, and Philadelphia, Pa.—show an increase of between 25 and 40 per cent. In New York city the number of passengers per mile is 726,416, and in Philadelphia, 640,165, while Boston, San Francisco, and Washington are the other cities which report more than 400,000 passengers per mile. The ratio is least in Los Angeles and Oakland, Cal., because of their extensive suburban lines, and in Scranton, Pennsylvania.

A comparison of these statistics for individual cities in 1902 bears out in a general way the opinion that the larger the city the greater tends to be the number of passengers who will be carried per unit of track, but many other influences also enter in and often counteract that of population.

*Passengers per car mile.*—Because of differences in the size of cars and in the average length of rides a bare comparison of the number of car miles operated in the different individual cities and of the number of passengers per car mile is much less instructive than the other comparisons thus far presented. It is impossible, from the statistics, to trace any connection between the size of the city and the number of passengers carried per car mile. The highest ratio of passengers to car mileage is reported from the great urban center in northern New Jersey, of which Jersey City, Newark, and Paterson are the most important constituents; yet this center, as has been explained, was the only one of the eight centers having a population severally of 500,000 and over that showed a ratio of passengers per inhabitant below 190. Other cities showing more than five passengers per car mile are, in the order named, San Francisco, Providence, Philadelphia, New York, and Milwaukee. The lowest ratio of passengers per car mile, that of New Orleans, was 3, while that of both Los Angeles and Oakland was 3.2.

Statistics of the relation of passengers and trackage to population, for selected cities and towns of from 25,000 to 100,000 inhabitants and of less than 25,000 inhabitants, respectively, are to be found in Tables 13 and 14.

## IV.

### THE URBAN STREET RAILWAY AS A SOCIAL FACTOR.

The enormous movement of human beings on the street railways shown by the statistics must evidently constitute a factor of great importance in the social and economic life of the people. The social service of the street railways in the largest cities is so much more fundamental in importance than in smaller towns that it deserves special consideration. It is chiefly to such cities that attention is now directed. The benefits which have resulted from the recent development of interurban and rural electric railways are more fully discussed in Part I, Chapter VII.

*Distribution of urban population by street railways.*—The chief function of the street railway in a great city is the distribution of the population over a wider area than it would otherwise be possible to occupy. Economic and social forces tend powerfully to draw multitudes of people into huge urban communities, and as the inhabitants increase in numbers, they must either crowd ever closer and closer together, to the detriment of health and comfort, or they must find some means by which, without intolerable waste of time and strength, they may live farther from one another and from their places of business. The introduction of street railways in large cities, as well as the extension of their tracks and every improvement in respect to speed and comfort, came in response to an imperative social need. The relation between such improvements in street railway service and the demand for them is, of course, a recip-

rocal one. Had not the enterprise of street railway managers offered the opportunity for the wider distribution of population, the people would not have realized fully the unsatisfactory character of their housing conditions.

As more fully shown hereafter, a constant increase in the density of population, even since the introduction of street railways, has taken place in certain of the older crowded quarters of our great urban centers which continue to be used for residence purposes. But the fact is significant that a large majority of urban inhabitants have escaped the necessity of living in these crowded quarters. The occupied area of cities has extended steadily and rapidly. It is not true that the street railway has been the sole cause of this extension. To some extent it has been due to the establishment of manufacturing and commercial enterprises in the outlying parts of cities. The street railway, however, has been probably the most important single influence in dispersing urban population. The greater part of the breadwinners in the outlying sections of our largest cities are people who must rely upon street railways as a means of going to and from their places of daily employment.

The influence of the street railway in the distribution of urban population is often concretely illustrated by the manner in which the residence sections have followed the lines of the railways. In many cases the boundaries of the built-up area of a city, instead of being fairly uniform, consist of long fingers or tentacles reaching out from the more solid center, each owing its growth to a radiating street railway.

A few illustrations of the manner in which the outer areas of cities have increased in population during the decade from 1890 to 1900 will serve to indicate the influence of the street railway, particularly since the greatest development of street railway service has taken place during this decade. In the following discussion, where comparative statistics for the population of city wards or other areas are given, the area covered is the same in 1900 as in 1890, account having been taken of changes in boundaries.

The population of Manhattan borough of New York city grew from 1,441,216 in 1890 to 1,850,093 in 1900, an increase of 408,877. Of this increase, 231,556, or considerably more than one-half, took place in the Twelfth ward alone, the population of that ward having practically doubled during the decade. This ward comprises that part of Manhattan Island lying north of Eighty-sixth street, which is approximately 7 miles from the southern extremity of the city. The great majority of the breadwinners of this ward do business elsewhere and make daily use of the street railways.

The population of Bronx borough, which lies northeast of the Harlem and even more distant from the business center of the city than the thickly settled part of the Twelfth ward, increased from 88,908 in 1890 to 200,507 in 1900. Without surface and elevated railways but a small fraction of this great addition to the population above the Harlem would have been possible. The manner in which the street railways have affected the growth of this borough may be understood by observing how the dwellings have followed the lines of the elevated railway and the Third avenue surface system.

The borough of Brooklyn, a large part of whose breadwinners find their employment either in Manhattan or in parts of Brooklyn which are reached from the residential sections only by street railways, shows a much more rapid growth in population than Manhattan. During the decade between the last two censuses the inhabitants increased from 838,547 to 1,166,582, or about 39 per cent, as compared with about 28 per cent for Manhattan borough. Much the greater part of this addition to the population of Brooklyn has taken place in the outlying wards. Thus the extensive wards numbered 8, 18, 22, 24, and 26, in 1890, together with the still more distant wards known at that date as Flatbush, New Utrecht, Gravesend, and Flatlands, advanced in population from 234,929 in 1890 to 455,264 in 1900, the increase amounting to more than two-thirds of the total increase of the population of Brooklyn. While the population of these outlying wards nearly doubled during the decade, that of the remaining 21 wards increased only 18 per cent. The transportation facilities of even the most distant residential sections of Brooklyn are almost wholly confined to the electric surface and elevated railways.

The borough of Queens shows an even more remarkable increase of population than Brooklyn, the inhabitants numbering 87,050 in 1890 and 152,999 in 1900 and the increase has been largely in the more distant and thinly populated wards, which are largely occupied by people doing business far from their homes. Thus the ward known as Jamaica shows an increase from 14,441 to 30,761, and Newtown an increase from 17,549 to 40,903. The transportation facilities of these sections are, in part, furnished by steam railways, but it is believed that the electric surface and elevated lines carry the greater proportion of the traffic. There has been a marked increase in the street railway facilities of these wards in recent years. Indeed, a detailed examination of the maps of both Brooklyn and Queens boroughs shows distinctly that the extension of population has largely been determined by the location of such railways.

The city of Boston, with the immediately adjacent cities of Somerville, Cambridge, and Chelsea, and the town of Brookline, furnish another conspicuous illustration of the influence of electric railways in distributing population. Of the seven wards lying nearest to the business center of Boston, five showed a decrease in population from 1890 to 1900; although in the Sixth and Eighth wards, which are largely occupied by the poorest immigrant classes, there was an

increase from 31,473 to 40,085. The Eleventh and Seventeenth wards, which lie next to these central wards, added only moderately to their population, and the same is true of the three wards across the Charles river in Charlestown. On the other hand, the Eighteenth, Twentieth, Twenty-first, Twenty-second, Twenty-third, Twenty-fourth, and Twenty-fifth wards, which are farthest from the center of the city toward the southwest, increased in population from 149,978 in 1890 to 243,373 in 1900. The increase of 93,395 inhabitants in these outlying wards was nearly five-sixths of the total increase for the city of Boston. The Twenty-fourth ward, whose nearest boundary is several miles from the business center of the city, increased in population from 29,638 to 61,676. During the interval between the two censuses, moreover, the population of Cambridge, Somerville, Chelsea, and Brookline increased from 150,192 to 207,536, or much more rapidly than that of the older parts of Boston. A very considerable proportion of the breadwinners, both of the outlying wards of Boston and of the adjacent cities mentioned, are employed in the business district of Boston and depend for transportation upon the electric railways.

The change in the distribution of the population of Philadelphia since 1890 has been no less remarkable. Almost all of the wards in the heart of the city show a decrease in population, while several of the large outlying wards to the west and north of the business center have added greatly to the number of their inhabitants. Thus Ward 34, which lies west of the Schuylkill and comprises a part of what is known as West Philadelphia, increased from 23,721 in 1890 to 43,706 in 1900. Wards 28, 37, and 38 (which constituted one ward in 1890) situated to the northwest of the business center, increased from 46,390 to 99,480, and the adjoining Ward 33 increased from 33,171 to 65,372. At their nearest boundary these last-mentioned wards are nearly 3 miles from the city hall, and they extend to a distance of more than 4 miles from that point.

Chicago also shows the influence of railways in scattering population. It is scarcely necessary, however, to present additional statistics to illustrate this movement in the largest cities. But even cities of the second class have experienced a similar tendency toward the pushing of their population into the outlying districts. Thus the inhabitants of that part of the city of Cleveland which was included within city limits in 1890 increased from 261,353 in that year to 356,923 in 1900. Of this gain of 95,570, more than two-thirds took place in the wards 18 to 27, inclusive, the population of which increased from 83,349 to 148,857. These wards lie in a double row along the eastern and southeastern boundary of the city. They are at no point less than 2½ miles from the business center of Cleveland, and they extend to a distance of about 6 miles from that center.

Street railways not only help to prevent excessive crowding of urban population, but in most cities they even aid a large fraction of the people in continuing the practice, so characteristically American, of living in independent houses instead of in tenements. This is true even in such large cities as Philadelphia, Chicago, and Boston, a thing which would be obviously impossible if the occupied territory were as contracted as it would have to be in the absence of the railways. The social advantages of the individual dwelling house need no emphasis. The street railway likewise aids in such a spreading of the population of many of our medium-sized cities—such, for instance, as Buffalo, Detroit, and Cleveland—as to permit a large proportion of the dwellings to be detached structures with open yards, which add greatly to the health and pleasure of the people.

In still smaller towns the street railway becomes less essential as a means of dispersing population. As might be expected, the proportion of railway rides to inhabitants is much less in such places than in great cities. Even here, however, the same function of the electric railway manifests itself to some extent as one of the influences that makes possible houses with large yards and placed in the most pleasant situations. The demand for street railway service in such towns varies greatly with local topographical conditions. Sometimes these conditions, or other causes, dictate that industrial establishments shall be situated at some distance from the most desirable residence sites. Sometimes a town is shut into a narrow valley, or confined along the borders of a river, so that the expansion of population must be chiefly in one direction. In either of these cases, more demand for street railway transportation will be found than in a compact town of equal population. For these and other reasons, it is impossible to generalize with regard to the extent of the patronage which street railways may expect in places of small size. Many of the railways which serve towns of this sort find it necessary to seek interurban business as well.

*Influence of electric railways on suburbs.*—The electric railway has given a powerful impetus to suburban life in the vicinity of our large municipalities. Prior to its advent the suburban dweller was confined to the steam railway as a means of transportation. Suburbs were, of necessity, situated chiefly along the lines of the great through railways, since it would not usually prove profitable to construct a local steam line primarily for suburban traffic. The electric railway has not by any means wholly superseded the steam road as a means of transportation for suburban residents, but a large proportion of the suburbs which were formerly accessible only by steam roads are now served also by electric lines, while many new suburbs have been created by the extension of electric railways. The possible area for suburban life has thus been increased and the way opened to many favorable sites which were

previously inaccessible. The relative advantages of the street railway and the steam railway for suburban traffic differ in different cases. On account of having its own right of way, the steam railway can run its trains faster within the limits of the closely built area of the city than can most electric railways, which traverse the public streets. Even outside of the closely built area, the speed of the steam train is at present greater than that of most suburban electric cars. The electric railway has counter advantages. Its cars run much more frequently (which may more than offset any advantage of the steam railway in regard to speed); it is free from smoke, and, more important still, it can usually carry the suburban passenger more nearly to the precise point which he desires to reach. The steam railway has at most but a few stations within the city limits, and its nearest station is often a considerable distance from the business center of the city.

The census of 1900 shows a very marked increase in the suburban population in the vicinity of our great cities since 1890. To be sure, the growth of suburbs has in most instances been no faster than that within the limits of the city. In considering this fact, however, it should be noted that the limits of several of our great cities are so extensive that a considerable number of the inhabitants in their outskirts are living under an approach toward suburban conditions. Since a large fraction of the addition to the population of such cities is in these outlying districts, it is not proper to judge of the relative importance of the growth of suburbs by comparing the population of the villages outside the city limits with the total population inside.

Urban centers differ materially from one another in the degree to which the growth of their suburbs has been aided by the electric railway. On account of the great geographic areas within the limits of New York city and Chicago it is probable that the larger part of the passenger traffic between these cities and the suburban villages outside their boundaries is at present carried by steam railways. Electric suburban service is about to be introduced on the leading steam railways entering New York city, and new exclusively electric lines for fast suburban service have been recently built or are planned in both Chicago and New York. Boston illustrates more clearly the influence of the electric railway. Several of Boston's residential suburbs, the people of which patronize the trolley railway much more than the steam lines, show marked increases in population since 1890. Thus the population of Newton rose from 24,379 in that year to 33,587 in 1900; that of Hyde Park from 10,193 to 13,244; that of Medford from 11,079 to 18,244; and that of Arlington from 5,629 to 8,603. The population of several other residential suburbs increased in similar proportions. Philadelphia is another city whose suburbs are served largely by electric railways, and their population has considerably increased since 1890. The population of St. Louis county, Mo., which adjoins the city of St. Louis, increased from 36,307 in 1890 to 50,040 in 1900; that of Milwaukee county, Wis., outside the city of Milwaukee, from 28,500 to 44,702; and that of comparable areas of Cuyahoga county, Ohio, outside the city of Cleveland (the city limits having been extended during the decade), from 34,522 to 57,352. The traffic of the suburbs of all three of these cities is, in considerable measure, carried by electric railways.

*Effect of street railways in concentrating business.*—The presence of a rapid and cheap means of passenger transportation permits the manufacturing establishments, and still more the commercial establishments of a city to be located in a manner which will be most convenient and economical for themselves and their patrons. With regard to retail and wholesale trade, and to office business, there is a great economic advantage in concentration in specialized centers. The same is true in varying degree of many classes of manufacturing concerns. It is often advantageous to have those of the same character near together, or even to have the entire manufacturing business of a city concentrated in one district. Without effective methods of transporting passengers, such concentration could not have been accomplished to the same extent.

A conspicuous illustration of the advantages of local concentration in business is found in the retail sections of our great cities. By means of the street railway, customers from all parts of the city are able to come to a common center where they find huge stocks, wide variety, and effective competition, all of which would have been largely lacking had they been compelled to patronize small local concerns within walking distance from their homes. The large scale on which retail business in cities is now conducted, with its resultant economies, would not have been possible in any such degree without the opportunity of bringing widely separated customers to a single shopping section. The department store could never have attained its present importance except through the aid of the street railway.

There are no satisfactory statistics regarding the degree to which the business of cities has become concentrated in narrow areas. Mr. B. J. Arnold, in his report on the Chicago Transportation Problem, presented to the city council toward the end of 1902, estimated the daily movement of people into the central section of Chicago, by means of the surface street railways alone, at about 225,000. He assumed that 20 per cent of the total surface railway traffic was carried by cross town lines which did not reach the business center, but that only 25 per cent of the trunk-line traffic consisted of short rides, the remainder representing travel to and from the business center. A still larger proportion of the traffic on the elevated railways, which carry more than a fourth of the city's passengers, was to and from the same center, which has an area of scarcely more than a square mile. It has been estimated

that the day population of Manhattan Island below Canal street is about half a million greater than the night population, and a large proportion of this enormous number of persons is brought thither by street railways.

*Effect of street railways on land values and rents.*—Closely connected with the influence of the street railway in spreading out the residential sections and concentrating the business sections of cities is its influence upon the values of land and upon rents. Every extension of a railway line into new territory increases the selling and rental value of the real estate in the vicinity. In numerous cases real estate syndicates have built railways for the purpose of rendering their lands accessible to the people and increasing their price. This was conspicuously true during the "booms" in the Western states.

While the street railway is thus a creator of land values in certain sections, it sometimes helps to destroy them in other sections by making it possible for the population and business to move elsewhere. Broadly speaking, the railways tend to distribute and equalize land values in the residential parts of cities and to prevent the excessive rents in certain sections which would follow from overcrowding. On the other hand, the street railway tends to increase land values in those sections of a city which become specialized as centers of industry and trade.

*Relation of street railways to the social life and recreations of the people.*—The street railway has done much to increase the opportunities of city dwellers for enjoyment and improvement. To a large proportion of the city population it is the usual conveyance employed in making social calls and carrying on other forms of social intercourse. The distances which must be covered for these purposes in large cities are so great that social intercourse would be very much restricted without cheap and rapid transit. Again, the street railway enables thousands to attend theaters, music and lecture halls, and other places of entertainment and instruction, who would otherwise either be excluded altogether, or be compelled to confine their patronage to establishments of a neighborhood character which could not offer such attractions as are now readily accessible.

More important is the social service rendered by street railways in carrying the people from the crowded parts of cities to places of outdoor recreation and amusement. The public parks of our municipalities find their usefulness immensely enhanced by the cheap and easy means of access afforded by street railways. The large country parks which have recently been opened at some distance from the closely built areas of Boston, New York, and several other great cities, depend almost wholly on this means of transportation for their patronage. In this connection it may be suggested that the restriction of urban land values which is so largely due to the influence of street railways, has made it possible for cities to set aside parks even within their more closely populated areas. Bathing beaches, race tracks, ball grounds, and private amusement and recreation parks of all sorts owe their accessibility in no small measure to the electric railway. A very considerable proportion of the people of our large cities obtain numerous outings in the evenings or on holidays and Sundays, which would be impossible without the aid of this form of transportation. While the forms of recreation thus obtained are not always of a high character, they are in general far more beneficial than none at all, or than those which would be available in the crowded city. In this way, as in many others, the electric railway is an important factor in improving the health and increasing the happiness of city people.

The street railways of smaller towns likewise render an important service in furthering the social life and the recreations of the people. Indeed it is probable that a larger proportion of the traffic of railways in such places may be considered pleasure travel than in the great cities.

*Street railway parks.*—An interesting development in the street railway business, which has taken place almost wholly since the introduction of electricity, is the establishment of parks and resorts by the street railways themselves. A very large proportion of street railway companies now operate, either directly or indirectly, amusement and recreation places of some sort. The companies which reported to the Bureau of the Census that they maintained such enterprises numbered 289, and some of these have two or more parks. Table 97 indicates, for each company, the number of parks operated. An attempt was made, in connection with the present investigation, to obtain a statement of the number of persons visiting these street railway resorts during the census year. It was found, however, that many of the companies were unable to make even the roughest estimate on this point, while others submitted estimates that were obviously very far from correct, and the data were, accordingly, omitted from the report.

It is much more common for street railway companies to maintain parks in the medium-sized and smaller cities and towns than in the great cities, where places of recreation are amply supplied by public authorities or by independent private enterprise. Of urban centers of 500,000 or more inhabitants the only ones in which important parks are operated by urban railway companies are Philadelphia, Pittsburg, and Baltimore. The Pittsburg Railways Company reports 2,113,340 visitors to its parks during the census year. The centers of from 100,000 to 500,000 population in which street railway parks of importance exist are Washington, D. C.; Minneapolis-St. Paul, Minn., where the company has 4 parks, with an estimate of 1,000,000 visitors during the year 1902; Kansas City and St. Joseph, Mo.; New Orleans, La. (965,000 visitors); Indianapolis, Ind.; Columbus, Ohio (455,000 visitors); and New Haven, Conn.

(600,000 visitors). The interurban railways radiating from some of the other large cities also operate parks. Among other companies whose parks are an important feature may be mentioned the Connecticut Railway and Lighting Company of Bridgeport and surrounding towns, which estimates that 800,000 persons visited its 3 parks in 1902; the People's Railway Company of Wilmington, Del., with 750,000 visitors; the United Traction Company of Reading, Pa., with 1,103,000 visitors; the Boston and Northern Railway Company, with 4 parks and 800,000 visitors; the Old Colony Railway Company of Massachusetts, with 600,000 visitors; the Butte (Mont.) Electric Railway, with 350,000 visitors; the Portland (Me.) Railroad Company, with 750,000 visitors; and the Seattle Electric Company, with 4 parks and 750,000 visitors.

In the case of some of the still smaller railways the traffic connected with the parks constitutes a very large proportion of the total business. The Bridgeton and Millville (N. J.) Railway estimates the visitors to its park at 350,000, while the total number of fare passengers for the year was 1,698,227. In judging of the importance of the traffic connected with the park in this, as in other cases, it should be remembered that probably most of the visitors to the park pay two fares. The railway at Muskegon, Mich., reports 250,000 park visitors, and total fare passengers, 1,655,762. The Kingston (N. Y.) Consolidated Railway estimates 500,000 visitors to its park, and total fare passengers, 2,217,334. The Youngstown (Ohio) Park and Falls Railway had 366,000 park visitors, its fare passengers numbering 1,241,016. Youngstown, however, has other more important railways. The Holyoke (Mass.) Street Railway Company reports 1,280,000 park visitors and 6,336,300 fare passengers.

In practically all cases street railway resorts are located at some distance from the closely built parts of cities and towns. One of the chief attractions to the patrons is the long, swift ride in the open car with the cooling breeze created by the motion. In a considerable number of instances the railways charge a second fare for the outer part of the trip to the resort. Thus the large park operated by the Union Traction Company of Philadelphia is about 13 miles from the city hall, and a fare of 5 cents is collected in addition to the city fare. The grounds are often of considerable size and present the attractions of woodland, sea, lake, or river, but since these natural features are not sufficient to create the traffic upon which the railway company depends for the profitableness of its resort, except possibly on Sundays and holidays, forms of amusement suitable for evening are usually provided. Some companies have invested large sums in fitting up their parks with theaters, merry-go-rounds, switchback railways, and similar attractions. Decorative and brilliant electric illumination is usually a prominent feature.

Many street railway companies incur heavy expense in the operation of such resorts and parks. Admission to the grounds is almost always free, and while there is ordinarily a charge for some of the amusements, the statistics show that the total direct receipts from parks seldom materially exceed the running expenses and usually leave a deficit. The company expects its profit in the increase of transportation business. Some street railway men assert that even from this standpoint the maintenance of a park or resort is often an unprofitable enterprise. Local conditions vary widely, and a place of recreation which would pay well in one city would prove a failure in another. Among the difficulties mentioned are the facts that the traffic created is largely confined to a few months of the year and to pleasant days, that it is so heavy during certain hours in the season as usually to necessitate a double track, that empty cars must be accumulated to take people home at the close of the day or evening, and that it is often difficult to combine successfully in one individual the qualities of an efficient railway officer and director of recreation grounds.

## V.

### INADEQUACY OF PRESENT STREET RAILWAY FACILITIES IN GREAT CITIES.

*Inadequate speed and carrying capacity.*—Remarkable as have been the strides in methods of transportation, and important as are the social benefits which they confer, it is generally recognized that the railway service of our greatest cities is still inadequate. Indeed it may be doubted whether, as compared with the needs of the people, the facilities in such cities at present are any more adequate than they have been in the past. The city of New York naturally presents the most striking evidence of insufficient transportation, both on account of its enormous population and on account of the physical limitations upon the distribution of its population. The long and narrow Manhattan Island is cut off from the broad areas to the east and west by wide rivers, the facilities for crossing which have hitherto been hopelessly inadequate, so that the expansion of the population in these directions has been seriously hindered. More relief for that city will be secured by the construction of bridges and tunnels than by any improvement of railway service alone.

Leaving aside the question of fares in their relation to the use which the people make of the street railways, the inadequacy of street railway service consists chiefly in the insufficient speed of transit and the insufficient number of cars. These conditions are so familiar that they scarcely need to be illustrated.

Notwithstanding the immense saving in time effected by the street railways as compared with walking, the total number of hours which are still spent by the people of a metropolis in monotonous travel represents a great social waste. It is quite probable that the average citizen of such cities as New York, Philadelphia,

Boston, or Chicago, who takes the railway to and from his place of business regularly, spends not less than an hour every day on the cars, while thousands upon thousands spend two hours or more daily in this way. The uncertainty as to the length of time required to make a journey, due to the frequent blocking of traffic, is a further source of annoyance and loss. Naturally, the consumption of time in travel is usually more serious for those who live in the suburbs than for those in the city itself. The time required for the suburban end of the journey, however, is generally less than for that in the city proper, where the speed of cars is greatly restricted.

An illustration of the extent to which railway cars in large cities are habitually overcrowded at certain times of the day was given in connection with the proposal recently made by one of the elevated lines in New York to put on several additional trains during the afternoon hours in order to relieve congestion. The press in estimating the relief which would be afforded assumed that each train, according to the customary practice, would be able to carry 700, when, as a matter of fact, each train would seat about 300 persons. A count of the actual passengers on the surface cars passing north and south at the corner of Madison avenue and Fifty-ninth street in New York on December 29, 1902, showed the following conditions during rush hours: From 7 to 9 a. m. about 3,000 seated passengers passed to the south, with about 1,700 standing. From 6 to 7 p. m. about 4,300 seated passengers were carried to the north, with more than 3,200 standing. At several other points on surface lines during the same hours the overcrowding of cars was nearly as great.[1]

In several of our cities surface railways may be said to have accomplished practically all that is possible toward meeting the need for ample and rapid transportation. All, or nearly all, the streets in the business centers of these cities are already occupied by tracks, and, as shown hereafter, the number of cars run over the tracks in those centers has reached the limit of safety. The introduction of electricity made possible some increase in speed, and thus not merely saved time but increased the number of cars which could be run over a given track, at the same time permitting the use of larger cars. The great increase in the number of passengers on the surface railways in our largest cities immediately after the substitution of electricity for animal power showed the importance of the relief afforded. But the demand for more and longer rides outran the progress of the surface railways. Difficulties more fully set forth below have made the increase of speed much less than would otherwise have been possible. The average schedule speed of electric surface cars in Chicago has been estimated at 8.22 miles per hour, which is only 2¼ miles per hour faster than the schedule time with horse-power.[2] In the more crowded streets in all great cities the speed is much less than the average, so that to take the car for a short trip may consume more time than to walk. Even the addition of elevated railways to surface systems has failed to meet fully the needs of transportation in our greatest cities.

*Effects of inadequacy in transportation.*—Some of the results of this inadequacy of urban railways are familiar. Rather than ride in slow and overcrowded cars, thousands of people walk even considerable distances to their business and on social errands. The growth of suburbs has been far less rapid than would have been the case with proper transit facilities. Although, as pointed out above, there has been a marked absolute increase in the number of suburban dwellers since 1890, the proportion of people who do business in the city and have their homes in the suburbs is still small, and great numbers, who would prefer to reside there, are unable to do so under present transportation conditions. Strictly suburban life is still almost wholly confined to the well-to-do.

Nor do the street railways accomplish all that could be desired in distributing population within the city itself. In several of our great cities are found overpopulated quarters occupied by the poorer working classes, composed largely of the foreign born and their immediate descendants. Most of these people do not use the street railways to any considerable extent, but live within walking distance of their places of employment. Of course, inadequacy of transportation is not the sole cause of overcrowding in such sections; other important influences contribute to it. In other cases city dwellers, although they live in quarters where there is no marked crowding, yet find their health and comfort impaired by the proximity of the smoky, dirty, noisy factories in which they must find their employment. The inadequacy of transportation agencies is one of the most important causes of these unsatisfactory adjustments of population. Doubtless to some extent the failure of certain classes to use the railways is due to poverty, and patronage would increase if fares were reduced; though, even under present conditions, the lower rent in outlying districts would often offset the cost of street car journeys. But the poor can not spare the time for railway rides. The time required to reach a less crowded section of the city is quite a different matter to the working man or woman who toils ten, eleven, or twelve hours every day at a regular occupation, from what it is to the business man or clerk who is employed from six to nine hours only.

The lower East Side of New York city is the most conspicuous illustration of a section tenanted by people who do not, to any important extent, patronize street railways. In the Seventh, Tenth, Eleventh, Thirteenth,

[1] Report of F. H. Shepard, transportation expert of the New York state board of railroad commissioners, Street Railway Journal, January 31, 1903.

[2] Report of B. J. Arnold on the Chicago Transportation Problem, 1902, page 49.

and Seventeenth wards (all below Fourteenth street and east of the Bowery), a population of 455,173 is huddled into an area of 979 acres (exclusive of parks and cemeteries). About one-fourth of the population of Manhattan Island thus occupies less than one-twelfth of its habitable area. Despite all the improvements in transportation the population in these wards has continued to grow, the increase from 1890 to 1900 being 34.1 per cent. While the density of population in the upper wards of Manhattan ranges from 90 to 180 per acre, these five wards have from 381 to 678 inhabitants per acre. Much the greater part of the people in this excessively crowded section find their employment in the immediate vicinity.

One other illustration may be taken from Philadelphia, a city which is subject to no such physical limitations upon its extension as New York, but which still has an overcrowded section. The Second, Third, and Fourth wards of the city, lying south of Market street, near the Delaware river, have a combined area about one-fifth as great as that of the Thirty-third ward, and less than one-fifth of that of the Twenty-eighth, Thirty-seventh, and Thirty-eighth wards jointly. The total population, however, of the Second, Third, and Fourth wards in 1900 was 82,461, or about one-fourth greater than that of the Thirty-third ward and only about one-sixth less than that of the three other wards mentioned. Furthermore, these three overcrowded wards increased their population 14.7 per cent between 1890 and 1900.

Several conditions which confront the street railways in cities of the first rank contribute to make the problem of furnishing adequate transportation an infinitely more difficult one than is encountered in smaller places. These conditions are not only to a large extent incapable of removal, but they grow more serious from year to year. They point to the necessity of comprehensive and far-seeing plans for the reorganization of methods of transportation.

*Increase in demand for transportation more rapid than increase in population.*—The comparative statistics of street railway traffic for urban centers of different sizes heretofore presented (page 19) show clearly that the number of street railway rides tends to increase faster than population. This tendency is even stronger than the traffic statistics indicate, since in the largest cities the actual traffic, for reasons already indicated, does not equal the needs of the people. As a matter of fact, the relationship between street railway rides and population revealed in these figures is a necessary one. For in the first place it is evident that, as the city grows in population and area, a constantly larger proportion of its citizens must, or at any rate should, reside so far from their places of employment as to require means of transportation. Moreover, as the city grows, the distance which must be covered by the average passenger increases. Still another cause of this relationship is found in the fact that as the population of a city increases its individual citizen widens his social and economic circle and needs to be put into connection with more people; hence he more frequently requires transportation.

*Local concentration of traffic.*—The modern tendency toward greater local concentration of the business of a city, while itself a product, to a considerable extent, of improved methods of passenger transportation, constitutes in another sense a cause of the unsatisfactory condition of the street railway service. This concentration not only tends to increase the total number of persons needing transportation, but it draws so many railway lines and cars to a common center that the traffic there becomes congested by its very magnitude. One has only to stand for an hour at such a point as the corner of Madison and State streets in Chicago, the street railway terminus at City Hall in New York, or the Park street station in the Boston subway, to appreciate how greatly the enormous magnitude of the traffic interferes with rapid handling of it.

*Unequal distribution of traffic.*—Perhaps the most important source of difficulty in urban transportation lies in the fact that the traffic is very unequally distributed throughout the day. A large proportion of the passengers consist of people going to their places of employment in the morning and returning at night. The flow of shoppers toward the retail centers is better distributed through the day, but the return tide of shoppers is at its height during the very hours when employees are seeking their homes.

This inequality of traffic, though striking, is perhaps not so great as is sometimes supposed. A careful estimate made by the Metropolitan (Interurban) Street Railway Company (now the New York City Street Railway Company, a surface line) for all its lines on December 17 1902, put the number of passengers carried during the five busiest hours, from 7 a. m. to 10 a. m. and from 5 p. m. to 7 p. m., at about 35 per cent of the total number carried during the twenty-four hours—practically the entire traffic of the company being carried during eighteen hours. The Union Railway Company and the Southern Boulevard Railway Company, whose lines are in the less densely populated Bronx borough, estimated that about 40 per cent of their passengers were carried during these same five hours.[1]

In every city there are certain points at which the distribution of traffic is much more unequal than is true of the street railway system as a whole, and at these points congestion of movement is likely to occur during the rush hours. This fact may be illustrated by further data regarding passengers on the north and south surface lines at Fifty-ninth street and Madison avenue in New York city. On December 29, 1902, about 4,700 passengers were carried on the southbound surface cars at that point during the hour from 7 to 8

[1] Wheatly, "The Passenger Traffic Problem of Greater New York," Street Railway Journal, January 10, 1903.

a. m., while at the same time less than 600 were carried north. From 9 to 10 a. m., on the other hand, only about 1,300 passengers were carried south and about 500 north, the total traffic in both directions being barely one-third as great as during the earlier hour. From 2 to 3 p. m. about 1,400 passengers rode toward the south and about 1,250 toward the north. From 6 to 7 p. m. only about 500 passengers were carried south, while nearly 7,600 passed toward the north, the total traffic being thus more than three times as great during this hour as from 2 to 3 o'clock.[1]

Street railway companies, of course, adjust the movement of cars, in some measure, to this great variation in the traffic. Since ordinarily it is impossible to allow cars to collect in the business center of a city, the operation of additional cars for the accommodation of the traffic during the rush hours means that many partly empty cars must be run in the opposite direction at about the same time. This is often the case even where the cars running in the direction of greatest travel are seriously overcrowded. The total number of cars in operation in both directions during the rush hours is usually, moreover, materially greater than the number employed at other hours.

In the particular instance just mentioned, the number of cars passing Fifty-ninth street and Madison avenue toward the south from 7 to 9 a. m. was about four-fifths greater than the number moving in that direction from 9 to 11 a. m. The count of the passengers showed that while the cars south bound from 7 to 9 a. m. were greatly overcrowded, the cars north bound from 8 to 10 a. m. had less than one-third of the seating capacity occupied. The seating capacity of the cars running in both directions from 8 to 9 a. m. was about 4,500, while during several hours in the middle of the day the seating capacity of cars moving in both directions was only from 3,000 to 3,500 per hour. From 6 to 7 p. m., on the other hand, the cars passing both ways had a seating capacity of 6,100. Just before and during this rush hour, the south bound cars had only about two-fifths of their seats occupied, while from 6 to 7 p. m. barely half of the north bound passengers could find seats. The number of cars passing Madison avenue and Fifty-ninth street in the evening hours was smaller even than in the middle of the day, and yet a large part of the seating capacity of those south bound was unoccupied. A comparison with similar counts at other points on the Metropolitan Railway system shows that the degree of inequality in the total number of cars moved which exists at Madison avenue and Fifty-ninth street is by no means exceptional. The traffic in a city like Brooklyn, which is chiefly a place of residence, is even more irregular. In this city the state board of railroad commissioners found in 1903 that the leading surface system was operating an average of 545 cars per hour during nonrush hours, while during the busy period of morning and evening it expected to run about 1,200 cars per hour.[2]

This irregularity in the distribution of traffic on street railways tends in two ways to hinder the provision of prompt and adequate service. In the first place, there are important instances in which, even though the railway companies might be willing to run a sufficient number of cars, they would be prevented from doing so by the physical limitations of their tracks. This point is more fully treated below.

In the second place, it costs more to handle a given number of passengers irregularly distributed than would be the case if they were evenly distributed through the day. Railway companies are, therefore, naturally indisposed to incur the expense which would be entailed by furnishing sufficient cars to seat all passengers during the busy hours. Even under present conditions, when cars are so greatly overcrowded, the inequality in the distribution of cars is a source of complaint among street railway managers. They are constantly lamenting over the "peaks in the load line." A larger power plant and more cars are necessary to maintain the present schedules than would be required if the number of cars could be evenly distributed throughout the day. Fixed charges per unit of traffic are accordingly increased. Even the current expenses in the running of cars are somewhat augmented by the unequal distribution of traffic. Despite the most complicated adjustments of the trips of conductors and motormen to secure an even distribution of their work, most street railway companies in large cities are either forced to pay a certain number of their car-service employees full-time wages for operating cars only part of the day, or they must find men who are willing to work and draw pay for a part of the day and who usually must be paid at higher hourly rates than the full-time employees. The so-called "tripper" problem constantly confronts the manager of an urban railway.

*Causes limiting speed and carrying capacity of surface railways.*—Four facts connected with surface railway transportation put very rigid limits upon the speed and carrying capacity of electric surface cars in cities, namely, the frequency of the necessary stops, the danger to pedestrians in crowded streets, the interference of cars with one another, and the blocking of the tracks by other vehicles. The first two limitations are obvious. The danger of accident is indicated by the statistics elsewhere presented. The number of persons, other than passengers, who are killed or injured by street cars is very considerable. The last two limitations require more extended consideration.

The number of cars which can be run over a given railway route, as a whole, depends upon the number which can pass the point where the greatest interference is encountered and where the speed is least. To increase

[1] Report of F. H. Shepard, Street Railway Journal, January 31, 1903.

[2] Street Railway Journal, Vol. XXII, 1903, page 1039.

the speed over other parts of the route will not enable more cars to be operated. At many points where important railway lines cross one another in the business centers of cities, the extreme limit of the number of cars which can be safely operated has already been reached.

An investigation made at the instance of the Merchants' Association of New York in 1903 showed that the number of cars which passed the intersection of the Broadway and Twenty-third street lines was no less than 573 per hour. At Broadway, Sixth avenue, and Thirty-fourth street (Herald square), where two north and south lines and one cross town line intersect, the number of cars per hour was 464. Several other points showed as great congestion of traffic.[1] The crowding of surface cars at the New York end of the first East River bridge is likewise enormous. Here the difficulty is enhanced by the fact that the several car routes terminate at the bridge. Unlike the cars from Brooklyn, which pass around closed loops, the Manhattan cars run up to stub ends, and considerable delay is caused by the necessity of changing gates, fender, and controller handle to the other end of the car.

The traffic in the business center of Chicago is also hampered by the necessity, under present arrangements, of running many cars to stub terminals. The use of the cable system, with the difficulty at railway crossings due to the necessity of dropping the cable, tends still further to limit the number of cars which can pass over the tracks in the heart of Chicago. According to a recent report it is impossible to increase the number of cars on most of the lines which run into the business center, and very little improvement in service can be made without radical changes in methods.[2]

At the corner of Eighth and Market streets in Philadelphia, where a single track crosses a double track, 315 cars pass between 5 and 6 o'clock every afternoon.[3]

It is evident that even if there were no other vehicles besides cars it would be difficult to operate many more cars than now pass such points as have been described, but the situation is made much worse by other classes of vehicles. Interference from this source is inevitable in the business quarters of cities, particularly where, as too often happens, the streets are absurdly narrow and suited only to the primitive conditions under which they were laid out. A conflict of interests exists between the commerce and trade of the great city (which require the most speedy and convenient handling of merchandise) and the patrons of the street railways. It has frequently been asserted, not merely by street railway men, but by public authorities and citizens' organizations as well, that at present the owners and drivers of vehicles do not sufficiently regard the rights of the street railway and its passengers. Truckmen prefer to drive on the railway tracks because of the smooth surface afforded the wheels, and they do not always turn out as promptly as they could. Moreover drays are often backed up to the curb and left standing for some time in such a way as to make it impossible for street cars to pass; in many such cases it would be possible for the dray to avoid interference by standing lengthwise of the street. Again there are frequent blockades of vehicles, in part unavoidable with the enormous traffic, in part due to the lack of stringent and well-enforced "rules of the road."

How easily vehicle traffic may interfere with the movement of street cars may be judged from a count taken by the Metropolitan Street Railway of New York on December 27, 1902. During the hour from 11 a. m. to 12 m. 1,910 vehicles, not including cars, crossed the tracks of the company at the junction of Broadway and Twenty-third street. From 3 to 4 p. m. 1,250 vehicles crossed the tracks at Canal street and West Broadway, while during the same hour at each of three points on lower Broadway more than 1,000 vehicles crossed.[4] The New York State Board of Railroad Commissioners in 1903, after investigating the complaints regarding the inadequate service on the surface railways of Manhattan, asserted that "the very first and largest measure of immediate relief that can be obtained is that which could be derived from the regulation of independent vehicles in the streets." The board further expressed the belief that with adequate regulation of vehicles and with the removal of the obstructions due to the building of the subway, 25 per cent more cars could be operated, even during rush hours. In accordance with these recommendations certain new regulations have recently been adopted by the city authorities.

*Elevated railways.*—In view of the conditions which have been described, it is possible that a wholly satisfactory solution of the problem of transportation in great and rapidly growing cities may never be attained. What is wanted, eliminating the question of fares, is simply more cars and higher speed, but while there has been a steady progress in both of these directions, serious physical and financial difficulties stand in the way of adequately meeting the requirements. It long ago became apparent that in the largest cities the surface railways must be supplemented either by elevated or by underground lines, which would both increase the number of available tracks where the traffic was most dense, and greatly add to the speed of travel, thus saving time and lengthening possible journeys.

The first elevated urban railway in the world was chartered in New York as far back as 1867. It was the Greenwich street and Ninth avenue line. Before 1880, the system in Manhattan had attained almost its present form, in which four trunk lines run lengthwise of the narrow island. The relief afforded by these elevated

[1] Report of F. H. Shepard, Street Railway Journal, January 31, 1903.

[2] Report of B. J. Arnold to the Chicago city council.

[3] Wheatly, "The Philadelphia Rapid Transit System," Street Railway Journal, April 4, 1903.

[4] Wheatly, Street Railway Journal, January 17, 1903.

lines was enormous. During the eighties an extensive elevated system was also built in Brooklyn.

The extension of the population northward, which the elevated lines of Manhattan had quickly aided, developed a traffic which soon overtaxed their capacity. The laying of a third track over part of their structures increased somewhat the possible number of trains, and also permitted the operation of express trains which, by making very few stops, especially during the middle part of the trip, could carry passengers from the foot of the island to Harlem or the Bronx in about half an hour. These express trains were introduced almost solely to meet the heavier traffic at rush hours. But elevated lines suffer even more than the surface lines from the unequal distribution of traffic. The greater proportion of their passengers are persons going to their business in the morning and returning home at night. The longest train which the steam engines, formerly used in New York, could haul was five cars. It became impossible to increase further the number of trains at rush times; indeed, blockades at the terminals, which are quite inadequate in platform space and in number of switch tracks, were of frequent occurrence. In 1902 the vice-president of the Manhattan Railway Company stated that during the rush period 81 trains per hour, going north alone, passed the junction of the Sixth and Ninth avenue lines at Fifty-third street, a number which could not with safety be exceeded, since about half of the trains are compelled to cross tracks at this junction.[1] For these reasons, tens of thousands of long-distance passengers in New York, who would have preferred to take the elevated trains, were compelled by the overcrowding to patronize the slower surface cars.

It is a remarkable fact that the number of passengers carried on the Manhattan Elevated Railway actually decreased considerably for several years. In the year ending September 30, 1901, the passengers numbered 191,152,316, nearly the same as in 1890, and more than 28,000,000 less than in 1893. The traffic on the Brooklyn elevated lines decreased still more, falling from 100,181,372 passengers (including transfer passengers), in 1893 to 62,587,361 in 1901. This decrease in elevated traffic is doubtless attributable chiefly to the improvement of the surface railways, which offered advantages to short-distance passengers in the greater number of their lines and the frequency of stops.

The installation of electricity on the elevated lines of New York and Brooklyn during the years 1901 to 1903 has materially increased their carrying capacity, by making it possible to operate trains of six cars and to maintain a somewhat higher average speed. As a result the passenger traffic has risen rapidly, the number of passengers carried by the Manhattan Railway reaching 255,565,390 in the year ending September 30, 1903, an increase of more than 30 per cent over 1901. But the present elevated lines of Manhattan have now almost reached the limit of improvement, and they do not begin to meet the demand for rapid long-distance transportation. The capacity of the Brooklyn elevated railways has heretofore been limited chiefly by the concentration at a single bridge terminal. It is now proposed, however, to make use of the new Williamsburg bridge for elevated trains, and this will greatly relieve the congestion.

Beginning in 1892, four elevated railway systems, radiating from the business center, were constructed in Chicago. While the traffic of these lines is much lighter than in New York, the single loop around the business center, which is used by all of them jointly for all trains, has virtually reached the limit of its capacity.

It is, of course, possible to increase considerably the number of elevated lines in any city, even in New York, and thereby to relieve the congestion of traffic. The construction of additional tracks in the crowded business centers toward which trains converge would alone add greatly to the carrying capacity. But serious objections lie against elevated railways in the more important streets. The pillars interfere with traffic on the surface; the structures are usually ugly and shut out the light from the street and buildings below; and the noise of the trains is a very great annoyance. As a result, the value of real estate on certain streets occupied by elevated railways, particularly in the residential sections, has either been diminished or has increased less rapidly than elsewhere, and the companies have been compelled to pay large sums for damages to property. For these reasons the attitude of the people and of municipal authorities is usually one of strong opposition to the erection of additional elevated structures in the business centers or on the more important residential streets. It is doubtful whether any new elevated lines would be tolerated on Manhattan Island.

Nevertheless, subway railways, which are the only alternative to elevated lines for rapid urban transportation, are much more expensive, and it is probable that a considerable extension of elevated railways in the suburbs of several of the leading cities of this country will be seen. Where the city is not contracted in area by geographic peculiarities it may prove socially and financially profitable to devote a few of the streets to these structures despite their disadvantages. The present tendency, as shown in existing or contemplated systems in Boston, Philadelphia, and Chicago, is toward the combination of elevated with subway construction for rapid transit railways. The fact that the elevated and subway lines in New York have come under the control of a single company may mean ultimately some passage of trains from elevated tracks to subway.

*Subways.*—Subways in connection with urban passenger transportation may serve two quite different purposes. They may be used to carry through the more densely crowded business center of the city the cars

[1] Wheatly, Street Railway Journal, January 10, 1903.

which elsewhere operate on the surface, or they may be used in any part of the city for the operation of cars and trains at higher rates of speed than would be possible on the surface. These two classes may be conveniently designated by the terms subways for surface cars and rapid transit subways. The two functions may in some cases be combined in a single subway. Subways for surface cars are naturally comparatively short. If rapid transit is sought, either the subway must be greatly extended or it must connect outside of the business center with elevated lines.

European cities preceded those of our own country in the construction of subways. London's underground steam railroads date back many years. The first underground electric line was opened in Budapest about 1896. Within the past few years high-speed electric subway railways have been constructed in London, Berlin, and Paris, and very extensive additions to these lines are in process of construction or are planned.

Aside from a few short and insignificant tunnels for surface cars, such as those under the Chicago river, the first subway for urban transportation in the United States was that constructed by the city of Boston, opened for operation in 1897. The narrowness and crookedness of most streets in the business center of Boston, and the concentration of traffic in Washington and Tremont streets, rendered the operation of surface cars utterly unsatisfactory. The present subway, most of which lies under Tremont street, has a total length of about 1½ miles. It accommodates both surface cars and high-speed electric trains, the latter emerging from the subway onto an elevated structure. For that part of its length in which the surface cars operate there are four tracks, two for each class of traffic. The subway is leased to the Boston Elevated Railway Company, which operates both the elevated and the surface systems of the city. The center of the elevated system is a large loop, of which the subway constitutes one side, inclosing the chief business section. From the loop radiate two lines, one toward the southwest, extending into Roxbury, and the other across the Charles river into Charlestown. The total length of the elevated and subway lines is about 8 miles of double track. Passengers coming from more distant points are given transfers to the elevated trains at the terminals, while, in the subway itself, passengers may transfer freely from surface cars to the elevated train, or from the elevated train to surface cars in cases where the cars are going in the same general direction. At present no surface cars run entirely through the subway. Those entering from one direction pass around a loop at Park street and return, while those from other directions pass around a loop at Scollay square. The short distance between these two loops is traversed only by elevated cars, but passengers, by a double transfer, can pass from the surface lines at one end of the subway to those at the other.

Great as has been the relief afforded by the Boston subway and elevated system, the situation is still far from satisfactory. The subway is so short as to necessitate sharp curves, and these diminish speed to such an extent that the subway accommodates with difficulty the cars which are already turned into it. To relieve the situation the city has planned to construct two practically parallel subways through the business center of Boston. One of these, under Washington street, will be used for the elevated trains, and the other, under Devonshire street, will be for surface cars. It is proposed when the Washington street subway is completed to withdraw the elevated trains from the Tremont street subway and devote it wholly to surface cars, part of which, at least, will then pass through its entire length instead of going around loops. A tunnel for street cars has just been completed under the bay to East Boston. When these plans are completed, the chief direction in which further development can be made will be in lengthening the present elevated lines and constructing one or more additional radiating lines for fast service, either on elevated structures or in subways. Definite plans of this nature are already under consideration.

Much more ambitious is the purpose of the New York Rapid Transit Subway, which will soon be ready for operation. The purpose here is to accommodate exclusively long-distance traffic. The tracks are kept underground for about three-fourths of their length, but for several miles in the northern part of Manhattan Island they are on a viaduct. The present subway extends from the city hall, where it terminates in a large loop, north on Center street and Fourth avenue to Forty-second street, thence west to Broadway and north on Broadway. At One hundred and fourth street the subway divides, one branch crossing Central park and running northeast to Bronx park, while the other, or direct line, continues north to Kingsbridge. The total length of the present subway is 20.81 miles. The subway below One hundred and fourth street has four tracks. On two of these, "accommodation" trains will be operated, stopping at intervals of from one-fourth to one-half mile, and maintaining an average speed of about 15 miles per hour. Over the other tracks will run express trains, making fewer stops and with much higher speed. The branches above One hundred and fourth street have two tracks. The upper parts of both branches reach into territory now rather sparsely built, which gives opportunity for considerable expansion of population.[1]

It has been estimated by experts that by the time the new subway is opened the long-distance travel on Manhattan Island will fully equal the capacity of both subway and elevated lines, and that the congestion of traffic

[1] Report of the Board of Rapid Transit Railroad Commissioners, 1900–1901.

will be as great after the subway is opened as it was before its construction was begun in 1900. The maximum capacity of the subway is estimated at 30 express trains and 50 local trains per hour in one direction, with a total seating capacity of 28,000 or a possible capacity when crowded of about 43,000 persons per hour. The elevated trains at present carry more than three times that number in one direction during rush hours. Nevertheless, a great relief will be afforded to the overcrowded elevated lines and to the thousands of long-distance passengers who now take the surface cars. The decrease in the amount of such traffic on the surface lines, by increasing the available space in the cars, will, it is believed, lead many people to ride short distances who now prefer to walk. Already plans are on foot for the construction of additional north and south subways in Manhattan Island, and it is evident that with the constant increase in population, only rapid progress in this direction will keep pace with the growing need for transportation.

Further relief for the population of Greater New York will result from the tunnels and bridges which are under construction, or planned, across the North and East rivers. These improvements are of a character so strictly bound up with the peculiar local geographic conditions that they throw less light upon the general problem of urban transportation than do the subways in Manhattan itself. It may be noted, however, that one prominent feature in the improvements which are to be effected in connection with these bridges and tunnels will probably be the additional use of elevated and subway tracks in the crowded parts of Manhattan and Brooklyn, both for the accommodation of surface cars and for the operation of fast trains.

In Philadelphia a comprehensive plan for securing rapid transit and for relieving the congestion of surface traffic is now in process of execution. The plan involves a subway about two miles long running under Market street, the leading business thoroughfare. The subway will pass around the city hall in a small loop. In addition, a larger loop, beginning at about the same place, will be constructed around the principal business center. This latter loop will have for its longer sides Arch street, two blocks to the north of Market street, and Walnut street, two blocks to the south. The subway west of the city hall will have four tracks, two for surface cars and two for trains which are to pass upon elevated structures at the termini of the subway. For the rest of its length the subway will have two tracks only. The elevated lines to be opened first will consist of a short spur along the river front south from the eastern foot of Market street, and a much longer line west on Market street to Sixty-third street, about 4½ miles from the city hall. Several other elevated railways are planned, branching to the north and south at three different points on the central stem.

Plans for the improvement of transportation conditions in other cities by means of elevated railways and subways have not yet reached such an advanced stage of development. In Pittsburg it has been proposed to construct an elevated railway in the business center of the city, subway construction being practically out of the question on account of the physical conditions. In Chicago, among other measures for the relief of the transportation situation, such as the construction of additional loops on the present elevated railways in the center of the city, plans are on foot for the construction of an elaborate system of subways, running in both directions under several of the streets in the business center, for the use of the surface cars.

An important point in connection with elevated and subway railways has to do with the relations between them and the surface lines. In Brooklyn, Boston, and Philadelphia, single companies control both systems, while in Manhattan and Chicago the elevated and surface lines are controlled by different companies; the Manhattan subway and elevated lines, however, being controlled by one company. It is evident that the most satisfactory service to the people will be rendered where transfer from one system to the other is easy and free. A normal arrangement would be one of radiating elevated or subway trunk lines, with interlacing and parallel surface lines, by which the passenger could more precisely reach his destination.

Satisfactory suburban and interurban service can be secured only in connection with elevated or subway lines in the densely populated parts of the great cities. There seems no reason why the suburban and interurban cars should not be run directly onto the rapid transit lines in the city, as the cars could be so constructed that they could be connected with the regular elevated or subway trains. Something of this sort already exists in Brooklyn where, at the ends of some of the elevated structures, the trains descend to the surface and continue into the suburbs. It will probably not be long before the interurban railways radiating from such cities as Cleveland, Detroit, and Cincinnati will take the initiative in the provision of some method by which their cars can reach the centers of these cities at high speed.

The chief difficulty which stands in the way of a rapid development of subway systems for fast long-distance urban transportation is the heavy cost of construction. The cost varies greatly with local conditions. In New York, where an immense amount of rock excavation has been necessary, the present subway and tracks, exclusive of power house and equipment, and of damages to abutting property, will cost the city about $36,500,000, or about $1,750,000 per mile of line. From the standpoint of profits, moreover, both elevated and subway railways intended for fast traffic are confronted by the facts that most of their passengers ride long distances; that a majority must be carried to a single business cen-

ter; and that a very large proportion of the traffic is during the few rush hours. As population, aided by the facilities offered, extends farther from the center of the city, these peculiarities will become more marked. Nevertheless there is every reason to believe that, either through private or public enterprise, additional subways will gradually be constructed in New York and other cities. It is conceivable that, as subways and elevated railways become more adequate to handle the entire long-distance traffic, while short-distance traffic becomes the chief business of the surface lines, some difference in fares between the two may be established, presumably by a reduction in the present fares of the surface railways.

## VI.

### STREET RAILWAY FARES.

*Prevalence of the 5-cent fare.*—The rate of fare on about two-thirds of the urban street railways in the United States is 5 cents for any distance covered by a single car. The journey is often extended by means of transfers to other cars, a practice which will be fully discussed in the succeeding section. The practice, very common in Europe, of grading fares according to distance, does not exist in any proper sense in American cities. In some cases the restrictions on transfers are such that certain journeys within the city limits can be accomplished only by paying two fares. Naturally this is usually the case where different parts of a city are served by distinct companies. The most conspicuous illustration is in Chicago, where the railway systems of the south, west, and north sides are operated as independent units. The one-city one-fare principle is being strongly urged for Chicago. Consolidation of street railways has already virtually brought this about in most cities. American street railway managers very generally maintain that the uniform fare is more advantageous to the public than fares graded according to distance. Their strongest argument is that the graduation of fares would tend to restrict the expansion of the residential area of cities. They sometimes claim that this effect would be the more certain because to reduce fares for short distances to, say, 2 or 3 cents would make it necessary to raise the charge for longer distances above 5 cents. This necessity might, indeed, arise in cases where the present 5-cent fare brings only a low return to the railway companies, although the reduction in earnings through a lower fare would be at least partly offset by increased traffic. It is of interest to observe that in several German cities, where graded fares formerly prevailed, the uniform charge for all distances, at least within city limits, has lately been substituted.

The 5-cent fare likewise prevails on a majority of interurban lines, which either are so short that a fare of 5 cents will cover a ride over their entire length, or else collect this amount at different stages of longer journeys. The longer and faster interurban railways in most cases, however, collect single fares for the entire distance traveled by the passenger, issuing tickets in somewhat the same way as do the steam railways.

For the street railways of the country as a whole the average fare during the census year, obtained by dividing the receipts from passengers by the number of fare passengers carried, was 4.94 cents. On urban railways in cities of more than 500,000 inhabitants the average fare was 4.82 cents; in urban centers of from 100,000 to 500,000 inhabitants it was 4.93 cents; in those of 25,000 to 100,000 inhabitants, 4.78 cents; and in those of less than 25,000 inhabitants, 4.83 cents.

The fact that the average fare on urban railways of each group is thus somewhat less than 5 cents per passenger is due to the existence on certain railways of lower rates open to all passengers; to special rates on other railways for certain classes of passengers, particularly for children and workmen; and to some extent to the counting of transfer passengers as full-fare passengers in cases where an extra charge less than the full fare is made for a transfer. This latter practice prevails, for example, in Philadelphia.

*Reduced fares open to all classes of passengers.*—The returns made to the Bureau of the Census show that more than one-third of all the operating street railways in the United States offer fares of less than 5 cents to all of their patrons under certain conditions. In almost all such cases the cash fare for a single trip is 5 cents, but tickets for a number of trips are sold at reduced rates. Sometimes these tickets are good only during the busy hours of the morning and evening. The reports in the present investigation do not, in some cases, indicate whether the reduced fares are so restricted or not. More than 200 railway companies offer tickets at a price of approximately 4 cents each. By far the most common practice among such railways is to sell 6 tickets for 25 cents. Sometimes a further reduction is made if a larger number of tickets is bought, 25 tickets being frequently sold for $1, and sometimes 26 or even more. On some railways the reduced fare is granted only to those who buy tickets to the value of $1. It is quite common for such companies to sell 24 or 25 tickets for $1. This is the custom, for instance, on the lines of the Connecticut Railway and Lighting Company, and on the systems at Springfield, Ill., Des Moines, Iowa, Muskegon, Mich., Syracuse, N. Y., Chattanooga, Tenn., Seattle, Wash., and a considerable number of smaller places. Occasionally, the purchase of a still larger number of tickets is required in order that the reduced fare may be obtained. Thus the Torrington and Winchester Railway in Connecticut sells 75 tickets for $3, and the companies at Atchison, Kans., and Cumberland, Md., with one or two others, sell 100 for $4. Two railways, in Olean, N. Y., and Bradford, Pa., require the passen-

ger to buy 200 tickets in order to get a 4-cent fare, while the Altoona and Logan Valley Electric Railway Company of Altoona, Pa., offers 500 tickets for $20. It is evident that a great majority of passengers will not take advantage of reduced fares if they are required to buy more than a dollar's worth of tickets at a time.

The approximately 4-cent fare in the various forms mentioned is found for the most part in cities and towns of medium or small size. In no urban center of more than 500,000 inhabitants are tickets sold to all classes of passengers at reduced rates. The largest cities in which, at the time of the census, 6 tickets were sold for 25 cents were Washington, D. C., Detroit, Mich., Milwaukee, Wis., Dayton, Ohio, Indianapolis, Ind., Reading, Pa., Worcester, Mass., Utica, N. Y., Wilmington, Del., and Richmond, Va. In Detroit, however, these tickets are good only during the "rush hours" of morning and evening, and the same may be true in some of the other cities named. Subsequent to the date of the census, the two railway companies in Cleveland, Ohio, reduced fares to the same basis, but they later restored the straight 5-cent fare.

The sale of tickets to patrons generally at reduced rates is quite rare among the street railways of New England, although a few of them grant lower rates to passengers who buy a dollar's worth of tickets. In the smaller cities and towns of New York, a considerable number of railways sell 6 tickets for 25 cents. This is the practice, for example, in Binghamton, Oswego, Rome, and Schenectady. On several railways in this state 24 or 25 tickets are offered for $1. Pennsylvania has even more railways which sell 6 tickets for 25 cents than New York. Among the more important Pennsylvania railways offering this rate are the Chester Traction Company, of Chester and vicinity; the Conestoga Traction Company, of Lancaster and vicinity; the Lebanon Valley Traction Company, of Lebanon and vicinity; the Schuylkill Valley Traction Company, of Norristown and vicinity; the Wilkesbarre and Wyoming Valley Traction Company; the Warren Street Railway Company; and the United Traction Company, of Reading. Altogether, there are more than forty street railways in this state which have approximately a 4-cent fare.

In the Middle Western states of Ohio, Michigan, Indiana, Illinois, and Wisconsin, the reduced fare, usually in the form of 6 tickets for 25 cents, is more common than elsewhere, and may almost be said to be the prevailing rate, except in two or three of the largest cities and on interurban railways. Practically all urban street railways in Indiana and Wisconsin sell 6 tickets for 25 cents, and the same is true of more than twenty-five of the street railways of Ohio. A fare at least as low as 4⅛ cents is available for all passengers in every city of more than 25,000 inhabitants in Ohio, except Youngstown, Toledo, and Cincinnati. A fare of approximately 4 cents appears also in about a dozen places in Iowa, the largest of which is Des Moines. Similar rates are also found occasionally in the Western and Southern states.

Fares even lower than 4 cents exist in a few cities and towns. The most familiar instance is Detroit, Mich., where, on part of the system now operated by the Detroit United Railways Company, 8 tickets for 25 cents are sold, in accordance with the terms of the franchise under which these lines were constructed. The new Central Market Street Railway in Columbus, Ohio, sells 8 tickets for 25 cents, while the older street railways in this city offer 7 tickets for 25 cents. The rate of 7 tickets for 25 cents also prevails in Salem and Delaware, Ohio, while in two or three other towns of the state where 6 tickets are sold for 25 cents, 27 may be bought for $1. A rate of 7 tickets for 25 cents is also made on the Pittsburg, McKeesport, and Greensburg Railway, of Pennsylvania, while in Kansas one of the minor companies offers 28 tickets for $1 and another 30.

In addition to railways which thus practically fix their fares at 4 cents or less, there are a number which grant slight reductions from the 5-cent fare. The rate of 11 tickets for 50 cents exists in Pueblo, Colo., on two interurban railways of Maine, and in several other places. In Mobile, Ala.; Santa Barbara, Cal.; Colorado Springs, Colo.; Auburn, N. Y.; Lincoln, Nebr.; Toledo, Ohio; Spokane and Tacoma, Wash.; and a number of other places, the railways sell 22 tickets for $1. The leading companies of northern New Jersey offer 21 tickets for $1, while on a number of railways of minor importance in various parts of the country, from 105 to 110 tickets are sold for $5.

*Reduced fares for particular classes of passengers.*—Sometimes street railway companies carry young children in company with their parents for half-fare. In Baltimore, Md., for example, the fare for children is 3 cents. It is probably more common, however, to charge full fare for children above a certain age and carry others free. A more important practice is that of granting reduced fares to school children. In such cases the most common rate is 2½ cents, though sometimes 3 or 4 cents is charged. In New England, it is almost universal for street railways to carry school children at reduced rates. Outside of New England, the practice is frequently found in smaller cities and towns, and in a few instances, in large cities also. Among the important cities which offer a fare of 2½ cents to school children are Boston, St. Louis, San Francisco, and Denver. Street railway companies presumably act on the theory that, by thus reducing the fares of school children, they will secure a considerable amount of traffic from those who would otherwise walk.

The practice of granting special rates to working people is comparatively rare in the United States. The returns to the Bureau of the Census do not indicate, in some cases, whether such special rates reported are limited in any way, and in other cases they do not show pre-

cisely the restrictions imposed; but usually there is no restriction except as to the time of day at which the journey is taken. In general, it may be said that the reduced fare for workingmen is confined to the hours from about 6 to 8 in the morning and from about 5 to 7 in the evening. Naturally any person who rides at that time may usually avail himself of the reduced fare. The special rate is sometimes confined to particular routes or distances. The practice is more common in New England than elsewhere. About sixteen of the street railway companies of Massachusetts reported reduced fares for workingmen, the most common rate being 2½ cents, although several railways reported 3 or 4 cents. The most important company which makes special rates for workingmen is the Boston and Northern Railway Company, which serves many cities and towns in eastern Massachusetts.

Among other instances of reduced fares for working people may be mentioned the practice of certain railways in the mining districts of Pennsylvania. For example, two companies centering at Shamokin, and several others elsewhere, sell 30 workingmen's tickets for $1. The Detroit and Port Huron Shore Line and the Saginaw Valley Traction Company sell 8 tickets for 25 cents to workingmen, while the railways of Zanesville, Ohio, and Clinton and Dubuque, Iowa, make a 2½-cent rate. When the elevated railways were first opened in New York they charged a 10-cent fare, but were required by law to carry passengers for 5 cents during the rush hours morning and evening.

It is rarely if ever true that workingmen taking advantage of such special rates are confined to particular cars. One frequently hears the suggestion, on behalf of the more well-to-do patrons of American street railways, that a class distinction in cars and fares should be made systematically, as is frequently done in European cities. It is complained that the presence of laborers in a crowded car is often distasteful to many of the passengers, and that, in some cases, their working clothes soil those of the other passengers. Aside from the general objection that such a plan would be contrary to American ideas of equality, street railway officers are very generally opposed to it from a business standpoint. Presumably it would mean a loss in revenue in many cases, since the distinction probably would have to be made by lowering the fares of second-class passengers rather than by raising those of first-class passengers. It is also argued that the attempt to enforce any such distinction would be virtually impossible in those cities where traffic is heavy, and where to wait for a car of the desired class would be most annoying. In all probability, the cars or compartments with reduced fares would be largely patronized by all classes of people, and would be greatly overcrowded, while the first-class cars and compartments would run partly empty.[1]

[1] The Report of the Massachusetts Railroad Commissioners for 1903 contains an interesting discussion of the subject.

## VII.

### TRANSFERS.

*Prevalence of transfer system.*—The fact that transfers were issued to more than one-fifth of the fare passengers on street railways in 1902 indicates the great importance of this practice in connection with the social service of street railways. As already pointed out, the proportion of passengers who transfer is highest in the large cities, where the railway lines are complex and where the distances to be covered are great. An examination of the detailed statistics for individual companies shows that there is scarcely an important surface railway in a city of more than 100,000 inhabitants which does not grant transfers on an extensive scale. The proportion of transfer to fare passengers, however, varies greatly among these railways. In the case of the Pittsburg Railways Company, which has 70 transfer points, only 11.4 per cent as many transfer as fare passengers are carried; and in Louisville, Ky., the proportion is still lower, 7.5 per cent. On the other hand, the great railway system of Boston, with only 38 transfer points, grants transfers to 51.7 per cent of its fare passengers. The construction of the elevated system in Boston, connecting by free transfer with many of the surface lines, has greatly increased the number of transfers granted. The Interurban Street Railway Company in New York has no less than 318 transfer points, and its transfer passengers are equal to about 40 per cent of its fare passengers. The Brooklyn Rapid Transit Company has a still larger number of transfer points, but the proportion of fare passengers who take transfers is much smaller—20 per cent. The Chicago Union Traction Company has 300 transfer points, and the proportion of transfer to fare passengers is 41 per cent.

The differences in the relative number of transfer stations and in the proportion of transfer passengers are due less to differences in the liberality with which transfers are granted than to differences in the geographic characteristics of cities, in the location of railway lines, and in the arrangement of continuous trips. Generally speaking, in most of our large cities, transfers are granted in such a way that a passenger can go from any point to any other point within the city limits, reached by the cars of the same company, unless the trip involves a return to approximately the starting point. Sometimes transfers are granted only on cash fares, not upon other transfers.

While transfers are given without charge in the great majority of instances there are a few exceptions, particularly where the transfers are between lines of separate companies. An arrangement of the latter type existed until recently between the Manhattan Railway's elevated lines and the Third Avenue Railroad Company's surface lines in New York, 3 cents being charged for a transfer ticket. The only important company

which requires payment for a large proportion of all transfers is the Union Traction Company of Philadelphia. An "exchange ticket" on its lines costs 8 cents, or 3 cents in addition to the single-trip fare. But the ticket is of indefinite duration and good at many different points, so that it can be held by the passenger until he has occasion to take a ride for which the transfer will serve. The company claims that the system has practically resulted in reducing the fares for a considerable portion of its patrons to a 4-cent basis, and that it is preferred by them to the granting of free transfers limited as to time and place. A considerable number of free transfer points also exist in Philadelphia.

*Causes of the extension of transfer privileges.*—The granting of transfers is largely a recent development. The consolidation of the street railways in most cities into one or two companies has offered opportunity for the extension of the system to a degree previously impossible. The transfer has served to increase greatly the possible length of ride which can be taken for a single fare, and to lengthen materially the average ride of all passengers. Moreover, the use of transfers makes it possible, without adding to the aggregate number of car miles operated, to increase the frequency of service between the more widely separated parts of a city. It might be possible for a railway company to cover the trip from a point on one line to a point on another line by a continuous car. In fact, in some European cities, complicated routes are arranged so that a person can go from any part of the city to almost any other part without change of cars. To carry out such an arrangement to its full extent, however, means that the cars which cover a given trip between widely separated points must run on a very infrequent schedule unless they run largely empty. By breaking the possible journeys into separate units connected by means of transfers, it becomes possible to operate on each unit of track the number of cars which the amount of its traffic demands, and often also to collect into a single car passengers transferred from several different lines.

The extension of the transfer system is partly the result of a direct popular demand. This demand, in the opinion of various street railway managers, would have expressed itself in a movement for lower fares had it not been met by greater liberality in regard to transfers. In several cities transfers are now made compulsory by law. Thus the present street railway law of the state of New York provides that any company, which has obtained its franchise since the law was passed, must, for a single fare, carry passengers between any two points within the limits of a single city which can be reached by its lines. When the control of the Third Avenue Railroad and its subsidiary lines was secured by the Metropolitan (Interurban) Street Railway Company, it was at first held by the latter company that the two railway systems were distinct, and that transfers between them were not obligatory under the law, but the courts have taken the opposite position in a recent case. The same decision, however, upheld the railway company in its refusal to issue transfers at certain points, on the ground that the congestion of traffic there renders the transfer of passengers dangerous to life and limb.

In Chicago the city council, under its authority to regulate the charges of railway companies, has passed an ordinance requiring every street railway to grant a free transfer from a car on which a cash fare has been paid to the cars of any other of its lines with which it connects. Transfers are good only if used within one hour. The supreme court of Illinois has held that the power to regulate fares includes the power to require the issue of transfers, or, in other words, the power to regulate the fare charged for trips over more than one line of the same company. It has also held that transfers must be granted between the lines of the Chicago Union Traction Company and those of the Chicago Consolidated Traction Company, since the former corporation controls the latter.[1]

As a rule street railway companies themselves have been liberal in their policy regarding transfers, and have made most of the extensions of the transfer privilege on their own initiative, in the belief that traffic and profits would be increased thereby. The head of one of the largest street railway systems in the country has stated that, in his opinion, nothing since the adoption of electric traction has done more to increase the receipts of his company than the giving of transfers. Other highly favorable opinions regarding the financial results of the system have frequently been expressed by prominent street railway managers. It is reasoned that for many people the extent to which street cars are patronized depends largely on the convenience of the service; that street car riding is, in some measure, a matter of habit which can be cultivated; and that, as a result of the longer possible rides under the transfer system, thousands of people live in the outskirts of the city or in the suburbs who would otherwise seek homes within walking distance of their places of business.

*Difficulties in administration of transfer system.*—The use of transfers involves certain administrative difficulties which are not fully appreciated by patrons of street railways. The railway company can not reasonably be asked to issue a stop-over ticket which will allow the passenger an indefinite amount of time at the transfer point. Still less can it be expected to grant transfers in such a way that the passenger can return to his starting point without paying an additional fare. In most cities there are railway lines so situated that an unlimited grant of transfers would make this possible, particularly if transfers be issued upon transfers. For this reason companies sometimes decline to permit

[1] Chicago Union Traction Company *vs.* City of Chicago, 65 Northwestern Reporter, pages 451 and 470, October 25, 1902.

transfers at certain points where they would be of material convenience to many people. Other companies, however, prefer to incur the comparatively small loss due to the failure of a few passengers to pay fares for what are practically return trips, rather than to displease the public by withholding transfers which can reasonably be demanded. An effective enforcement of the time limit on transfers would do away with many of the abuses of the system, but such enforcement is often found to involve considerable difficulty, and the railways naturally desire to avoid altercations between conductors and passengers as to the validity of transfers.

A further difficulty arises from the fact that passengers occasionally take transfers which they do not need and give them to other persons, who either use them themselves or sell them at a reduced price. Still more serious is the fraud sometimes practiced by conductors, by which they turn in transfers obtained from passengers, or from other conductors, in collusion in place of cash fares which have actually been paid. Much difference of opinion exists among street railway managers as to whether there is more opportunity for this practice when transfers are registered or when they are not registered.

Notwithstanding all these difficulties, street railway officers quite generally favor the transfer system, and believe that their losses through its abuse are small in the aggregate as compared with its advantages to themselves and to the people.

An act passed by the legislature of the state of Rhode Island in 1902 contains provisions which represent in a general way the ideas of railway men as to what constitutes a fair system of transfers. It requires every street railway company to issue a transfer to any cash-fare passenger in such a way as to enable him to reach any point in the city or town which can be reached by a second car, but which could not be reached by the first. The passenger must demand the transfer ticket at the time he pays his cash fare, and must continue his journey on the first car which passes the point of intersection. No company is required to issue a transfer which will enable a passenger "to return toward the point where he first took passage by a line running parallel with or in substantially the same general direction as the one to which he is transferred." Transfer tickets are not transferable, and any person who gives a transfer to another except to a conductor, or any person who offers to a conductor a transfer ticket which was not issued to himself, is subject to a fine.[1]

[1] Public Laws of Rhode Island, 1902, chapter 965.

# CHAPTER IV.

## CAPITALIZATION.

*Basis of statistics and method of presentation.*—Table 93 shows for each company, both operating and lessor, the amount of authorized capital stock, whether common or preferred, the amount issued and outstanding, and the dividends declared thereon; the amount of authorized and outstanding funded debt, with the rate of interest thereon; and the combined total of the capital stock and funded debt outstanding. A further column shows the capitalization per mile of track owned by each company, based on the net capital liabilities, as described more fully hereafter. The statistics of 7 companies operating 134.98 miles of track are not given. In the case of most of these companies the electric railway system is part of an ordinary steam railway system, and the capital properly assignable to the former can not be segregated from the general capitalization of the company as a whole. The capitalization of 52.97 miles of track leased from steam railways by electric companies is also omitted for the same reason.

Many companies have promissory notes for considerable amounts outstanding. The schedule, however, did not distinguish between notes of this sort and other floating obligations, such as accounts payable, audited vouchers, etc., and for this reason it is impossible to ascertain for companies individually, or for all companies combined, the amount of floating debt which can be strictly designated by the term "bills and notes payable." In many instances such floating debt has been incurred, not for the purpose of construction and equipment, but merely as an incident to current operations. There are, however, a considerable number of companies, particularly in Massachusetts, which have borrowed large sums on promissory notes, to be used for construction or equipment, and these properly constitute a part of their capital liabilities. It is possible that the prevalence of this practice in Massachusetts is connected with the strict regulation by the state law of the amount of capital stock and funded debt of street railways. For companies having large floating debts of this character, the items in Table 93, showing the total capital stock and funded debt, and the net capital liabilities per mile of track, are, in a sense, misleading. In the case of various companies in Massachusetts, footnotes have been appended to the table calling attention to the fact that a large amount of floating debt is outstanding. To the extent that these floating debts are properly to be considered capital liabilities, the total capital liabilities of street railway companies in the United States are understated. The amount so involved is, however, small as compared with the aggregate amount of capital stock and funded debt for the entire country.

A disturbing element in calculating the amount of capital liabilities per mile of track is found in the fact that many street railway companies own property other than the railway itself. Frequently one company owns securities of another street railway company. In the numerous cases in which an operating company owns the entire stock issue of a subsidiary company, the Census Bureau has usually dispensed with a report from the latter, and has treated the cost of its securities to the operating company as part of the cost of construction of the system of that company. In cases in which the securities owned are those of another company which reported to the Census Bureau, there is, of course, a duplication. Ordinarily the holding company has issued its own securities to an amount sufficient to cover the cost of the securities held, and expects to apply the dividends and interest which it obtains from the securities purchased to the payment of dividends and interest on its own issues based thereon. Even when securities are purchased by the use of a surplus, the transfer of part of the securities of one company into the treasury of another may be considered as, in a sense, reducing the aggregate amount of capitalization for the two combined. The holding company now derives (or at least hopes to derive) part of the income which its surplus should earn from the return on the securities owned, and need not demand so large a profit from the railway which it operates. For this reason the value of the securities of a reporting street railway which are owned by another reporting company should be deducted in determining the net capitalization based on the railway property of the holding company.

Again, it is very common for street railway companies to operate plants for the production of light and power for sale. The majority of such companies, however, declare that they are unable to distinguish at all accurately between the investment in the street railway branch and the investment in the light and power branch of the business. Accordingly, no attempt has been made in the returns of capitalization for individual companies or in the totals to segregate the value of light

and power plants. The fact that a company operates such a plant is indicated in a footnote in connection with the column showing the total capital liabilities, although, in the many cases where a company sells a small quantity of light or power without an appreciable extra investment of capital, no note is made of the fact. It is obviously improper to compare the capitalization per mile of track of street railways having light and power plants with that of other street railways. However, the figure of capitalization per mile of track for the United States as a whole, and the corresponding figures for most of the individual states and for groups of cities, are not largely affected by the presence of light and power plants. It is probable that the extra investment in such plants by the street and interurban railway companies of the country as a whole does not exceed 5 per cent of their total investment of capital. This opinion is strengthened by the fact that the total revenue of railway companies from sale of light and power is only 3.1 per cent of their operating earnings.

Footnotes to Table 93 call attention to the instances in which street railway companies have permanent investments aside from those in light and power plants and in their own railways. The amount of such investments has been stated wherever the company gave its consent, and that amount has been deducted in the calculation of the net capital liabilities based on the railway property. The figures in the last column of Table 93, showing the amount of net capital liabilities per mile of track, are obtained, with respect to most individual companies and with respect to all state and national totals, by dividing the amount of trackage owned (not the amount operated) into the net capitalization, as ascertained by deducting from the sum of the capital stock and funded debt outstanding the value of securities of other reporting railways held and the value of other outside investments, the value being in each case that at which these securities or investments are carried in the balance sheets of the holding companies, designated as "other permanent investments," in the Census schedule.[1] Much the larger part of the "other permanent investments" reported by all the companies combined represents the stocks and bonds of other reporting railways.

In many instances where street railways have been combined, either through stock ownership or through lease, the controlling company makes capital expenditures upon the lines of the subsidiary companies. The capitalization of the operating company may, therefore, appear exceedingly large in proportion to the trackage which it directly owns, being based in part on trackage of the subsidiary companies. On the other hand, the capitalization of the latter does not represent in such cases the total investment upon their lines. One of the most conspicuous illustrations of this situation is found in the Third Avenue system in New York. The Third Avenue Railroad Company itself has capital stock and funded debt outstanding to the amount of $55,995,800, while it owns outright only 27.24 miles of track. But the company owns $10,455,290 of the securities of its eight subsidiary companies, and, moreover, has advanced to them $11,383,476 for construction work. The capital stock and bonds of several of these companies are much less in amount than their cost of construction. The system as a whole has 230.73 miles of track, and the net capital liabilities are $269,142 per mile. In cases of this sort the parent and subsidiary companies have been treated as one system in computing the ratio of capital liabilities to the trackage, and any duplication of capital stock or funded debt due to the ownership of securities of one company by another has, as in other cases, been eliminated.

*Capitalization of companies, classified according to power.*—Table 20 is a summary of the statistics of capitalization for all street and electric railways and also for these railways classified according to power.

[1] Strictly speaking, the net capitalization should be computed by deducting the par value of the securities of other street railways held, but this figure was not called for in the schedule.

TABLE 20.—CAPITALIZATION OF COMPANIES, CLASSIFIED ACCORDING TO POWER: 1902.[1]

| | Total. | ELECTRIC, SURFACE. | | | Animal. | Steam and electric, elevated. | Cable, surface and inclined planes. | Steam, surface. |
|---|---|---|---|---|---|---|---|---|
| | | Without commercial lighting. | With commercial lighting. | Part time. | | | | |
| Number of companies | 980 | 724 | 121 | 58 | 54 | 6 | 14 | 3 |
| Track mileage | 22,389.04 | 18,662.29 | 2,464.19 | 831.17 | 158.12 | 228.10 | 33.11 | 12.06 |
| Capital stock outstanding, amount | $1,315,572,960 | $1,072,946,092 | $116,777,854 | $20,751,900 | $5,469,114 | $95,531,600 | $4,000,500 | $95,900 |
| Preferred | 127,930,179 | 91,077,179 | 21,644,900 | 1,500,000 | | 13,708,100 | | |
| Common | 1,187,642,781 | 981,868,913 | 95,132,954 | 19,251,900 | 5,469,114 | 81,823,500 | 4,000,500 | 95,900 |
| Per mile of track | 58,760 | 57,493 | 47,390 | 24,967 | 34,588 | 418,815 | 120,825 | 7,952 |
| Funded debt outstanding, amount[2] | 992,709,139 | 787,783,775 | 102,753,197 | 19,260,994 | 4,647,923 | 76,125,050 | 2,028,200 | 110,000 |
| Per mile of track | 44,339 | 42,213 | 41,699 | 23,173 | 29,395 | 333,735 | 61,256 | 9,121 |
| Total capital liabilities | 2,308,282,099 | 1,860,729,867 | 219,531,051 | 40,012,894 | 10,117,037 | 171,656,650 | 6,028,700 | 205,900 |
| Investments in securities and nonrailway property | 152,513,997 | 141,665,458 | 9,267,550 | 927,200 | 107,723 | 92,390 | 453,676 | |
| Net capital liabilities | 2,155,768,102 | 1,719,064,409 | 210,263,501 | 39,085,694 | 10,009,314 | 171,564,260 | 5,575,024 | 205,900 |
| Per mile of track | 96,287 | 92,114 | 85,328 | 47,025 | 63,302 | 752,145 | 168,379 | 17,073 |

[1] Exclusive of reports for 7 companies, having 134.98 miles of track, which failed to furnish this information, and exclusive of 52.97 miles of track leased from steam railway companies.

[2] Includes floating debt in the case of 7 companies which have not yet issued funding bonds.

The total authorized capital stock and funded debt of street and electric railways of the United States in 1902 was $2,870,629,316. Of this amount, $2,308,282,099, or 80.4 per cent had been issued and was outstanding at the end of the fiscal years covered by the various reports. This is exclusive of floating debt except in the case of 7 companies which have not yet issued intended funding bonds. Of the total outstanding capitalization, $532,813,318 represents the securities of lessor companies, $332,603,890 of this sum being stock and $200,209,428 bonds.

The total outstanding capital liabilities of companies operating primarily electric surface railways, including part-time roads, amounted to $2,120,273,812, or 91.9 per cent of the total outstanding capital liabilities for all street and electric railways. Most of the remaining capitalization is represented by elevated railways.

Of the total capital liabilities outstanding, capital stock constitutes 57 per cent and funded debt 43 per cent. The proportions which the two classes of securities bear to one another differ only slightly as between electric, animal power, and elevated railways. The great majority of the railway companies have funded debts, and in many individual instances, the amount of funded debt considerably exceeds the amount of capital stock. The United Railways and Electric Company, of Baltimore, Md., for instance, has $15,073,306 of stock and $51,381,694 of bonds; the Metropolitan Street Railway Company, of Kansas City, has $5,636,800 of stock and $16,038,400 of bonds.

The amount of preferred stock outstanding is a little less than one-tenth of the total amount of capital stock. Only 85 companies have preferred stock. Nearly all of these companies also have bonds. None of the animal power or cable railways has issued preferred stock.

The total amount of investments of street railway companies, in securities and nonrailway property, aside from the investments in the railways which they own and in electric light and power plants, as carried in the balance sheets of the companies, is $152,513,997. Nearly all of these outside investments are held by companies operating primarily electric surface railways. Deducting the value of these investments, there remains, as the net capitalization represented by the railway and electric property of street railway companies, $2,155,768,102.

*Capitalization per mile of track.*—The combined total capital stock and funded debt of all street and electric railway companies is equal to $103,099 per mile of track owned by them. When the value of "other permanent investments" is deducted the net capital liabilities per mile of track are $96,287. The net capitalization of those companies which operate primarily electric surface railways and which do no commercial lighting amounts to $92,114 per mile of track. From one standpoint this sum exaggerates slightly the capitalization of electric surface railways proper. For among the companies included are two, Brooklyn and Boston, which have a considerable mileage of elevated track, and several which have cable trackage in addition to their electric lines. Elevated railways and cable railways cost much more to build than the ordinary overhead trolley surface lines. The average capitalization of the exclusively elevated railways in 1902 was $752,145 per mile of track and that of cable railways, including inclined planes, $168,379. Even the exclusively animal power railways show an exceedingly large capitalization per mile of track. An examination of the returns of separate companies, however, shows that $8,960,000, or nearly nine-tenths of the total capital liabilities of these animal power railway companies, have been issued by four companies in New York city, which own only 30.82 miles of track. On the average these four companies are capitalized at $288,556 per mile. The average capitalization of the remaining 50 animal railway companies in the United States is about $8,000 per mile of track.

The figures of capitalization per mile of track just given appear at first glance very large. They greatly exceed the capitalization per mile of the steam railways of the country. The Interstate Commerce Commission itself computes the relation of capitalization to trackage for such railways only on the basis of the length of line—that is, of first main track—nor does it make deduction of the amount of securities of other reporting railways held by the companies. The report of the Interstate Commerce Commission does not show the actual length of all railway tracks in the country. It does show the number of miles of track operated, including second tracks, sidings, switches, etc. This figure (274,195 miles in 1902) is several thousand miles greater than the mileage constructed, by reason of duplication, in the statistics of track operated under trackage rights. On the basis of track operated the total capital liabilities of steam railways in 1902 ($12,134,182,964) were equal to about $45,000 per mile of track. But in order to render the figures comparable with those for street railways it is necessary to deduct the large amount ($2,208,518,793) of stocks and bonds of reporting railways which are held by other railway companies. With this deduction the net capitalization of steam railways would be about $36,000 per mile of track.[1]

The enormous increase in the capitalization of street railways per mile of track since 1890 has already been pointed out (page 11). It is not within the scope of this report to enter into a detailed discussion of the question whether or to what extent the street and electric railway companies of the United States may be overcapitalized. To do so would involve a consideration of unofficial estimates of cost of construction, which vary greatly in individual instances. It may be of value, however, to present a few general considerations regarding capitalization, which may aid in the interpretation

[1] See Statistics of Railways in the United States, 1902, pages 15, 17, and 54.

of the statistics just presented. The subject of the relation between capitalization and actual investment in the street railways is a very important one from the standpoint of the general public. Upon it hinges largely the question of the reasonableness of street railway fares and the question of taxation. Information regarding the amount of current expense necessary to carry a passenger can readily be secured. For the United States as a whole, the margin between operating expenses and fares averages a little more than 2 cents per passenger, while in the case of several important railways the margin is fully 2½ cents per passenger. (See page 86.) Though from this margin must be deducted an amount to cover the depreciation of property and taxes, much the greater part constitutes a net return to capital. The amount of dividends and interest actually going to stockholders and bondholders, taking the street railways of the country as a whole, represents less than the current rate of interest on an amount equal to the face value of their outstanding securities. Few companies pay a high rate of dividend. If the capitalization of the street railways of the country represented real value, dollar for dollar, earnings might appear to be not too great, but too small. The question of the reasonableness of profits thus becomes primarily one as to that of capitalization.

It is quite impossible to obtain accurate information as to the actual amount of money which has been spent in the construction and equipment of street railways in general or of most individual street railways. The item, "cost of construction," as carried on the books and balance sheets of street railway companies gives, in most cases, no idea whatever of the cash investment. The intervention of construction companies composed of the promoters of the railway has in many cases rendered the book value of properties misleading, and other similar reasons might be given. The most important difficulty, however, is that the greatest railway systems now existing have been built up by combination and recombination. The cost which a company enters upon its books when it buys another system is the amount of cash or securities which it has paid for the going concern. This amount is based upon the earning capacity, largely, if not wholly, irrespective of original cost. The records of cost of the absorbed companies are no longer accessible, and even if they were would probably not show correctly the actual investments. Estimates of engineers regarding the cost of construction hold good only for the conditions of the given time and place, and may be very far from correct as applied to the great majority of existing railways.

*Causes tending to increase capitalization.*—There are many causes which have tended to increase the capitalization of street railways during recent years. The cost of the roadbed of street railways is greater than is ordinarily supposed and has increased very materially under change from horse traction to electric traction.

Steam railways must incur large expense for grading, for making cuts and fills, for bridging streams, and tunneling mountains. Street railways, in most instances, are built on streets and roads already graded; they largely make use of public bridges and seldom have need of tunnels. Even in the case of urban railways, however, the foundation and roadbed, aside from the rails, involve much expense, particularly in the large cities, where the construction is often immensely superior to that in small towns. The heavier cars which have come into use have necessitated the most careful and expensive methods in the preparation of the foundations for tracks. In cities street railways are required, ordinarily, to pave the streets between their tracks and for a short distance on either side. The expense thus incurred is often greater than the cost of the rails themselves and greater than the cost of grading for steam railways under ordinary circumstances. The recent estimate of Mr. B. J. Arnold, regarding the cost of duplicating the Chicago street railway system, places the expense of paving at from $6,808 to $18,400 per mile of track, according to the character of pavement used.[1] Of course railways in small towns and many of the lighter interurban railways, particularly of those which are laid in or at the side of the country roads, have been subject to much less expense for grading, foundations, and paving than the best railways in the great cities. On the other hand, the highest type of electric interurban railway, operating on a private right of way, has a roadbed nearly if not quite as perfect and as expensive as that of steam railways in the same section of the country.

In the days of horse railways, the rails used were light in weight, often less than 40 pounds per yard. Nowadays the more important street railways in the cities, as well as the best fast interurban lines, are using rails of from 80 to 120 pounds weight per yard. These rails are heavier than those employed on a large proportion of the steam railway trackage. All the special work which accompanies the track has similarly increased in weight and in cost. To the cost of the track must be added that of overhead electric construction, an element of expense wholly lacking in the case of horse and steam railways. Underground trolley and cable construction are much more expensive still. The rolling stock of the modern electric railway costs far more than that of the old horse railway; the cars are larger, heavier, more comfortable, and more elegant; the motors cost far more than the horses which formerly hauled the cars; and the modern power house is a new and important source of capital expenditure.

*Reconstruction in relation to capitalization.*—One of

[1] See Report on Chicago Transportation Problem, 1902, page 192. The cost of macadamizing is put at $3,450 per mile.

the most important points to be borne in mind, in considering capitalization of street railways, is the cost involved in the reconstruction which has been necessitated by progress in methods. It is a fact sometimes overlooked that the tracks and equipment of the old-fashioned horse railways had practically to be thrown away when cable or electric traction was introduced, and that, in most cases, the expense of the new system was almost as great as it would have been had there been no previous railway whatever. The capitalization of the different kinds of street railways in 1890 can not be segregated accurately, but it is probable that the horse lines were represented by securities to the amount of fully $250,000,000, much the greater part of which was based on property that has since become valueless.

The cable railways which existed in 1890 have to a great extent been changed to electric operation, this being true even of two or three important cable lines completed since 1890. A considerable fraction of the large investment in cable railways has been destroyed by the change. The power houses, cables, and grips have been virtually thrown on the scrap heap; the subways in which the cables ran, the cost of which was very great, have been wholly abandoned in many instances; while in other instances the expense of reconstructing them for the use of the underground electric trolley, which has been done extensively in New York and Washington, is much greater than is ordinarily supposed. Mr. B. J. Arnold, in his report to the Chicago city council, declared that it would cost nearly as much to convert the cable lines of that city to the underground trolley system as to construct the latter at first hand. The expense, as indicated in the report, would depend largely upon the size of rails and the strength of conduit yokes used under the cable system. If, as in Chicago, heavier construction should be necessary to bear the strain of modern cars and speeds, the old work would be of little value.[1]

So, too, the change from steampower to electricity, particularly on the elevated railways of New York and Brooklyn, involved a great waste of capital.

Finally, many street railway companies have, even within the short time since electric traction was introduced, largely reconstructed their plants and equipment. The earlier motors, notwithstanding their high cost, proved insufficient in power and unsatisfactory in other ways. They have for the most part been replaced, and, in many instances, even these new motors have again been replaced. The small cars, unsuited to high speed, have given way to larger ones. The foundations of the roadbed and the tracks have had to be reconstructed and strengthened in many cases to meet the requirements of larger cars and increased speed. Even more conspicuous, perhaps, have been the replacements of the engines and dynamos in the power houses.

[1] Report on the Chicago Transportation Problem, 1902, page 158.

Changes of this sort result in greater economy of operation, and are usually profitable to the railway company even when the interest on the new investment is taken into account; but they have of necessity greatly increased the aggregate expenditure for construction and equipment. The railways, as they stand, have cost much more than they would cost if constructed de novo at the present time.

It is not true, however, that all street railways have been thus compelled to abandon or reconstruct properties representing large investments of capital. Most of the fast interurban railways have been built since the methods of construction and equipment were highly developed and have required as yet little reconstruction. Many railways in the smaller towns and cities, as well as a considerable part of the trackage even in large municipalities, date likewise from a recent period. In fact, as appears from Table 21, the capitalization of many of these newer railways is very much less per mile than that of older systems in large cities. No opinion is here expressed as to whether the present capitalization of street railways generally, or of any particular railway, corresponds to the total amount of money which has been actually invested in its present and past properties taken together. Attention is merely called to the fact that, taking the country as a whole, the aggregate waste of capital involved in the progress of street railway methods has been great. That waste must particularly be borne in mind in considering the capitalization of many individual companies.

The question at once occurs, however, to what extent property which has become valueless should continue to be represented by securities and to earn interest or dividends. It is commonplace in accounting that a certain amount should be charged annually against earnings, to cover, not merely depreciation arising from ordinary wear and tear, but also the probable depreciation arising from progress in methods. Street railway companies ought, of course, to be permitted to charge fares high enough to provide for such a reasonable depreciation allowance. Under proper accounting the net capitalization represented by depreciating property is thus gradually reduced, and the amount required from earnings for dividends and interest is correspondingly lessened. Doubtless, in many cases, street railways have in the past earned profits high enough to enable them to make such depreciation allowances if they had seen fit to do so. Their policy, however, almost without exception, has been to pay out the greater part of net income in dividends, although a surplus is often invested in the construction of extensions to old lines. Had correct accounting methods been pursued, the capitalization of many horse railways would have been completely written off by the time electric traction had rendered the plants valueless.

During the years since electricity was introduced,

changes in methods on many railway systems have been so rapid, and capital has been expended so fast, that it would have been impossible to make a depreciation allowance sufficient to write off the waste capital within the period of time during which it existed, without practically excluding the possibility of interest and dividends. Moreover, sufficient experience had not been accumulated, at least during the earlier years of electric traction, to enable accountants to determine what would be a reasonable allowance for depreciation. In instances where property is being replaced so rapidly it seems reasonable that the capitalization should be temporarily increased beyond the sum which would be necessary to construct the improved railway system from the beginning. But it seems equally reasonable that such capitalization, in excess of the cost of reproducing the properties, should thereafter be reduced as rapidly as possible by the accumulation of a depreciation fund. There is little probability that such sudden and great changes in methods will be necessary in the future as in the immediate past, and it will be possible hereafter to estimate depreciation better and to provide for it. Permanently to demand interest and dividends on securities issued for properties no longer in existence is unjustifiable.

*Capitalization of companies, classified according to population.*—Table 21 shows the statistics of capitalization of street and electric railways in urban centers, classified according to population, together with the two groups of interurban railways.

TABLE 21.—CAPITALIZATION OF COMPANIES, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 980 | 142 | 57 | 102 | 321 | 60 | 298 |
| Track mileage | 22,389.04 | 4,981.50 | 3,531.02 | 2,907.13 | 2,240.24 | 2,766.23 | 5,962.92 |
| Capital stock outstanding, amount | $1,315,572,960 | $678,097,721 | $236,388,265 | $111,533,682 | $50,086,219 | $78,673,375 | $160,843,748 |
| Preferred | 127,930,179 | 66,870,006 | 20,650,000 | 18,276,137 | 2,004,581 | 6,932,475 | 13,196,980 |
| Common | 1,187,642,781 | 611,227,715 | 215,688,265 | 93,257,495 | 48,081,638 | 71,740,900 | 147,646,768 |
| Per mile of track | 58,760 | 136,123 | 66,982 | 38,366 | 22,358 | 28,441 | 26,974 |
| Funded debt outstanding, amount | 992,709,139 | 488,648,145 | 167,314,210 | 77,858,913 | 39,341,284 | 68,615,080 | 150,931,507 |
| Per mile of track | 44,339 | 98,093 | 47,384 | 26,782 | 17,561 | 24,805 | 25,312 |
| Total capital liabilities | 2,308,282,099 | 1,166,745,866 | 403,652,475 | 189,392,545 | 89,427,503 | 147,288,455 | 311,775,255 |
| Investments in securities and nonrailway property | 152,513,997 | 124,803,819 | 4,556,993 | 5,671,304 | 3,301,516 | 2,416,934 | 11,763,431 |
| Net capital liabilities | 2,155,768,102 | 1,041,942,047 | 399,095,482 | 183,721,241 | 86,125,987 | 144,871,521 | 300,011,824 |
| Per mile of track | 96,287 | 209,162 | 113,026 | 63,197 | 38,445 | 52,371 | 50,313 |

[1] Exclusive of reports for 7 companies, having 134.98 miles of track, which failed to furnish this information, and exclusive of 52.97 miles of track leased from steam railway companies.

This table shows that of the total capital liabilities outstanding, which amount to $2,308,282,099, a trifle more than one-half has been issued by the railways in cities of more than 500,000 population, and an additional one-sixth by railways in urban centers of from 100,000 to 500,000 inhabitants. The capital liabilities of the fast, long interurban railways amount to $147,288,455.

The proportions of the total capitalization represented by capital stock and funded debt do not greatly differ as among the four groups of urban centers, the bonds in each group being approximately three-fourths as great in amount as the stocks. On both classes of interurban railways the bonds are equal to about nine-tenths of the capital stock. In recent years street railway companies have become more and more disposed toward the issue of bonds. (See comparison with 1890, page 11.) Interurban railways, which are mostly of recent origin, reflect this tendency in their large proportion of bonds to stock.

The investments of companies in securities and property outside of the street railway plants themselves and lighting plants are most conspicuous in the largest cities. This is explained by the fact that in the process of combination among railways in these great centers the securities of certain companies have become in large amounts the property of other companies.

*Capitalization of full-time electric surface railways without commercial lighting, classified according to population.*—Table 22 presents similar classified statistics of capitalization for those street railway companies which operate primarily electric surface railways, without commercial lighting, and which operated throughout the census year.[1]

[1] Companies operating only part of the year are excluded merely in order that the table may represent the same companies for which statistics of operation and income are elsewhere presented. Obviously, the fact that a railway has been only recently constructed and has not operated a full year does not ordinarily affect its capitalization.

TABLE 22.—CAPITALIZATION OF FULL-TIME ELECTRIC SURFACE RAILWAY COMPANIES, WITHOUT COMMERCIAL LIGHTING, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 724 | 122 | 48 | 85 | 172 | 46 | 251 |
| Track mileage | 18,662.29 | 4,701.99 | 3,222.74 | 2,159.26 | 1,359.51 | 2,162.62 | 5,056.17 |
| Capital stock outstanding, amount | $1,072,946,092 | $576,716,121 | $203,688,065 | $74,375,407 | $27,238,266 | $61,210,375 | $129,717,858 |
| Preferred | 91,077,179 | 53,161,906 | 14,350,000 | 9,726,237 | 934,581 | 4,832,475 | 8,071,980 |
| Common | 981,868,913 | 523,554,215 | 189,338,065 | 64,649,170 | 26,303,685 | 56,377,900 | 121,645,878 |
| Per mile of track | 57,493 | 122,654 | 63,203 | 34,445 | 20,035 | 28,304 | 25,655 |
| Funded debt outstanding, amount | 787,783,775 | 407,295,222 | 144,608,710 | 44,719,913 | 19,430,843 | 51,717,580 | 120,011,507 |
| Per mile of track | 42,213 | 86,622 | 44,871 | 20,711 | 14,293 | 23,914 | 23,736 |
| Total capital liabilities | 1,860,729,867 | 984,011,343 | 348,296,775 | 119,095,320 | 46,669,109 | 112,927,955 | 249,729,365 |
| Investments in securities and nonrailway property | 141,665,458 | 124,603,706 | 3,132,821 | 2,672,870 | 780,169 | 2,219,093 | 8,256,799 |
| Net capital liabilities | 1,719,064,409 | 859,407,637 | 345,163,954 | 116,422,450 | 45,888,940 | 110,708,862 | 241,472,566 |
| Per mile of track | 92,114 | 182,775 | 107,103 | 53,918 | 33,754 | 51,192 | 47,758 |

[1] Exclusive of reports for 7 companies, having 134.98 miles of track, which failed to furnish this information, and exclusive of 52.97 miles of track leased from steam railway companies.

The most significant fact brought to light by this table is that the capitalization of full-time electric surface railways without commercial lighting is very much greater in proportion to their trackage in large urban centers than in small ones. The average net capital liabilities of such street railways in centers of more than 500,000 population is no less than $182,775 per mile of track, or about five times as great as the net capitalization per mile of track of the steam railways of the United States. (See page 46.) For centers of 100,000 to 500,000 inhabitants the capitalization of railways of this class is $107,103 per mile; for centers of 25,000 to 100,000 inhabitants it is $53,918 per mile; and for those of less than 25,000 population, $33,754. The average capitalization of fast, long interurban railways is $51,192 per mile of track, and that of other interurban railways $47,758.

These averages include widely varying ratios of capitalization to trackage as among the different companies in each population group. Table 23 shows the number of companies in each group whose net capital liabilities fall within the limits specified.

TABLE 23.—*Distribution of full-time electric surface railway companies, without commercial lighting, in the several urban and interurban groups, according to capitalization per mile of track: 1902.*[1]

| NET CAPITAL LIABILITIES PER MILE OF TRACK. | NUMBER OF COMPANIES. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total. | Urban centers, population. | | | | Interurban railways. | |
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Total | 566 | 48 | 37 | 69 | 169 | 40 | 203 |
| Under $25,000 | 196 | 5 | 2 | 13 | 80 | 4 | 92 |
| $25,000 but under $50,000 | 184 | 8 | 2 | 26 | 60 | 22 | 66 |
| $50,000 but under $75,000 | 87 | 9 | 7 | 16 | 20 | 9 | 26 |
| $75,000 but under $100,000 | 35 | 6 | 5 | 5 | 5 | 3 | 11 |
| $100,000 but under $150,000 | 35 | 2 | 18 | 6 | 2 | 2 | 5 |
| $150,000 but under $200,000 | 10 | 6 | 1 | ..... | 1 | ..... | 2 |
| $200,000 but under $300,000 | 10 | 8 | 1 | 1 | ..... | ..... | ..... |
| $300,000 and over | 9 | 4 | 1 | 2 | 1 | ..... | 1 |

[1] Exclusive of reports for 6 companies which failed to furnish this information.

This table includes only primarily electric surface railways, without commercial lighting, operating the entire year. Lessor companies are omitted except where, as in several important cases, their capitalization and trackage are combined with those of operating companies. While only 12 of the 48 companies in urban centers of more than 500,000 inhabitants show a net capitalization exceeding $200,000 per mile of track, these 12 companies have 2,246.17 miles of track, or more than half of the total for all operating companies in the group. Six other companies in this group report more than $150,000 per mile of track. In urban centers of 100,000 to 500,000 inhabitants only 3 companies report more than $150,000 per mile of track. Half the companies in cities of this size have between $100,000 and $150,000 of net capital liabilities per mile of track, and these companies own much more than half of the total trackage of operating companies. In urban centers of 25,000 to 100,000 population, only 14 out of 69 companies have a net capitalization exceeding $75,000 per mile of track. The largest group of companies in cities of this size comprises those reporting from $25,000 to $50,000 per mile. Of the 169 companies in the smallest urban centers, only 29 have more than $50,000 of net capital liabilities per mile of track, and nearly half report less than $25,000. More than half of the fast, long interurban railways fall within the group having from $25,000 to $50,000 of net capitalization per mile of track. Very few of the many "other" interurban companies report more than $75,000 per mile of track, and 92 of them report less than $25,000 per mile.

While there is thus no uniformity in the relation of capitalization to trackage in cities of a given group, the classified statistics of Table 23 show that the averages for the groups presented in Table 22 give a roughly correct idea of the capitalization of a large proportion of the trackage in the several population groups.

The enormous disproportion between the capitalization of street railways in urban centers of different population is attributable, at least in part, to differences

in cost of construction. It may be noted in the first instance that in cities of more than 500,000 population several important companies which operate predominantly electric surface railways operate also in part more expensive forms of trackage. Thus, such companies in Brooklyn and Boston have nearly 90 miles of elevated structure; while in Chicago and San Francisco they operate more than 90 miles of cable railway. In New York city there are about 180 miles of track with underground electric conduit. Each of these kinds of construction costs necessarily very much more than the overhead trolley construction. However, the total trackage of these three classes owned by primarily electric surface companies in cities of more than 500,000 population is only about one-thirteenth of their trackage. Even if a liberal allowance of additional capitalization be made for the more expensive systems, the securities remaining as strictly attributable to the overhead trolley surface railway trackage (including therewith 82.08 miles of horsepower railway in New York and Chicago) in cities of the first group would probably still be approximately $175,000 per mile of single track.

Various causes have tended to make the cost of ordinary overhead trolley railways higher in centers of more than 500,000 population than elsewhere. The traffic is much heavier per mile of track than in smaller places, and the road must, therefore, be equipped with more cars; the expense for power houses and for car barns is much greater per unit of track than in cities where the traffic is less dense; the track, being subjected to more severe strain than elsewhere, is in general more expensively constructed, with deeper and stronger foundations and heavier rails; and the cost of paving is likewise greater.

Perhaps the most important factor tending to increase the amount of capital expended in street railway construction in the great centers of population is the fact that there, more than anywhere else, public demand has compelled speedy adoption of improvements in methods, resulting in extensive reconstruction and replacement. It was mostly in the larger cities that horse railways were developed and abandoned. It was chiefly there, too, that cable traction superseded horse traction, only to be itself soon displaced in most instances by electricity. Changes in methods of operation in these cities have had, in many cases, to be accomplished without the interruption of traffic, thus increasing the cost of reconstruction.

As the expense of constructing street railways has been greater in centers of more than 500,000 population than in those of any other class, so, doubtless, railways in centers of from 100,000 to 500,000 inhabitants have cost more than those in the centers of the next smaller size, and the latter in turn more than railways in the smallest urban centers. Whether these variations in cost are sufficient to explain altogether the wide differences in the ratio of capitalization to trackage is a question that can not be fully discussed in this report. It may be observed, however, that the temptation to overcapitalize is stronger in the great cities, for the margin of earnings over operating expenses is greater in such cities than elsewhere. In smaller cities, or on interurban railways, the profits of the business are frequently scarcely enough to pay interest on the bare cost of construction. Under such circumstances the issue of securities beyond that cost would find its motive almost solely in the hope of future increase in earning capacity.

*Capitalization, by states.*—Statistics showing for each state the amount of capital stock and funded debt authorized and issued, and the relation of the net capitalization of street and interurban railways to their trackage, will be found in Table 93. The capitalization per mile of track shows wide differences between states. Careful analysis will furnish a partial explanation of these differences. The ratio of capitalization to trackage would naturally be greatest in those states where the largest proportion of the trackage is situated in great cities. Moreover, in some states there is a much larger proportion of the expensive elevated, cable, and conduit trolley railway than in others.

Comparisons are often made between the capitalization of street railways in Massachusetts and in other states. In Massachusetts the issue of securities by street railway companies is closely regulated by law and by the State Railway Commission.[1] The net amount of capital stock and funded debt of the street railways of that state, according to the present investigation, amounted to only $39,067 per mile of track. Many of the Massachusetts companies have promissory notes outstanding in considerable sums, which have been issued to cover construction expenses. Even if the total floating debt of the Massachusetts railway companies be added to their stock and bonds, however, the net capital liabilities amount to only $45,600 per mile of track. This figure may be compared with $96,287 per mile of track, the average of the United States for all classes of companies combined. The only states which show a capitalization per mile of track lower than Massachusetts are Arizona, Arkansas, Idaho, Maine, New Hampshire, New Mexico, Vermont, and Texas. In none of these states is there a large amount of street railway trackage, and in most of them there are no cities of considerable size. On the other hand, the average capitalization of street railways per mile of track in the state of New York is $177,532; in Maryland, $156,142; in Missouri, $152,206; in New Jersey, $148,155; in Illinois, $135,507; and in Pennsylvania, $103,267.

In connection with the low capitalization figures for Massachusetts railways, it should be noted that the railways of that state are in a considerable measure

[1] For further description of the practice in this state see Chapter IX, Part I.

interurban in character. Most of these interurban railway companies reported less than $20,000 of capital per mile of track. Their trackage has been built, for the most part, on the public highways and at a comparatively low cost, a cost much less than that of the fast, long interurban lines more recently built, particularly in the middle Western states, and much less than that of railways in large cities.

In the case of every state where the street railways have an average net capitalization of more than $100,000 per mile of track, a larger proportion of the trackage lies within the limits of great cities than is the case in Massachusetts. In Illinois and New York a large amount of elevated, cable, and conduit trolley trackage is included in the average, while Massachusetts railways are, with the exception of 16 miles of elevated track in Boston and 25.43 miles operated on the third-rail system, purely of overhead electric trolley construction. It is highly probable, however, that the street railways of Massachusetts are more conservatively capitalized than those of most other states. The figures from which the average for that commonwealth is drawn include the excellent Boston system and other very satisfactory systems in the medium-sized cities of the state.

*Capitalization of surface railway companies in urban centers of more than 100,000 inhabitants.*—Table 24 shows the net capital liabilities of surface street railways in each urban center of more than 100,000 population, together with the relation between capitalization and length of track. The table includes all companies operating surface railways predominantly, whether by electric, cable, or animal power. The five strictly elevated railways have been excluded. As an aid to the interpretation of the relation between capital liabilities and trackage, the length of each class of trackage in each city is indicated. The statistics of Milwaukee, Wis., St. Joseph, Mo., and Toledo, Ohio, are not exactly comparable with those of other cities, since in these three cases the railway companies also operate lighting plants.

TABLE 24.—CAPITALIZATION OF SURFACE RAILWAY COMPANIES IN INDIVIDUAL URBAN CENTERS OF 100,000 POPULATION AND OVER: 1902.

| NAME OF CENTER. | Population. | TRACK MILEAGE. | | | | | Net capital liabilities. | Net capital liabilities per mile of track. |
|---|---|---|---|---|---|---|---|---|
| | | Total. | Electric. | Animal. | Cable, surface and inclined planes. | Steam, surface. | | |
| Albany, N. Y | 216,530 | 75.83 | 74.83 | 1.00 | | | $9,150,762 | $120,675 |
| Baltimore, Md | 510,288 | 365.12 | 365.12 | | | | 66,455,000 | 182,009 |
| Boston, Mass | 927,994 | 451.68 | [1]451.68 | | | | 43,972,299 | 97,353 |
| Buffalo, N. Y | 421,694 | 320.48 | 320.48 | | | | [2]25,920,923 | 87,076 |
| Chicago, Ill | 1,769,951 | 925.28 | 826.82 | 6.76 | 91.70 | | [3]99,951,396 | 109,537 |
| Cincinnati, Ohio | 429,137 | 263.57 | 261.46 | 1.50 | 0.61 | | 27,583,430 | 104,653 |
| Cleveland, Ohio | 405,359 | 237.04 | 237.04 | | | | 26,916,724 | 113,554 |
| Columbus, Ohio | 127,022 | 106.43 | 106.45 | | | | 11,605,000 | 109,039 |
| Denver, Colo | 133,859 | 149.77 | 149.77 | | | | [4]10,837,000 | 75,377 |
| Indianapolis, Ind | 169,164 | 109.86 | 109.86 | | | | 14,742,260 | 134,191 |
| Jersey City, N. J | 969,735 | 463.54 | 462.14 | | 1.40 | | 102,156,242 | 220,383 |
| Kansas City, Kans | 237,042 | 181.24 | 148.24 | | 33.00 | | 21,659,200 | 119,506 |
| Los Angeles, Cal | 118,746 | 164.16 | 154.86 | | 4.85 | 4.45 | 12,849,500 | 78,274 |
| Louisville, Ky | 204,731 | 147.13 | 147.13 | | | | 12,433,372 | 84,506 |
| Memphis, Tenn | 102,981 | 71.88 | 71.88 | | | | 4,410,000 | 61,352 |
| Milwaukee, Wis | 301,701 | 145.50 | 145.50 | | | | [5]18,830,000 | 129,416 |
| Minneapolis, Minn | 378,923 | 251.02 | 251.02 | | | | 28,898,000 | 115,122 |
| New Orleans, La | 287,104 | 180.31 | 180.31 | | | | 22,157,000 | 122,883 |
| New York, N. Y | 3,551,107 | 1,181.96 | [6]1,051.12 | 109.64 | 3.78 | [7]17.42 | 306,768,678 | 259,542 |
| Oakland, Cal | 101,872 | 122.80 | 121.80 | 1.00 | | | 10,760,215 | 87,624 |
| Omaha, Nebr | 155,268 | 105.95 | 105.95 | | | | 9,500,237 | 89,667 |
| Philadelphia, Pa | 1,293,697 | 517.53 | 517.53 | | | | 85,436,344 | 165,085 |
| Pittsburg, Pa | 640,380 | 469.47 | 464.25 | | 5.22 | | 86,931,900 | 185,170 |
| Providence, R. I | 268,946 | 137.05 | 137.05 | | | | 9,025,000 | 65,852 |
| Rochester, N. Y | 178,333 | 95.86 | 95.86 | | | | 9,584,887 | 99,988 |
| St. Joseph, Mo | 102,979 | 35.15 | 35.15 | | | | [5]9,100,000 | 258,891 |
| St. Louis, Mo | 614,328 | 396.21 | 396.21 | | | | 78,705,928 | 198,647 |
| San Francisco, Cal | 344,614 | 276.50 | 177.53 | 5.65 | 80.35 | 12.97 | 38,982,225 | 140,985 |
| Scranton, Pa | 155,655 | 76.68 | 76.68 | | | | 8,187,410 | 106,774 |
| Syracuse, N. Y | 123,776 | 68.16 | 68.16 | | | | 8,351,083 | 122,522 |
| Toledo, Ohio | 135,271 | 97.78 | 97.78 | | | | [5]21,574,504 | 220,643 |
| Washington, D. C | 279,940 | 139.67 | [8]139.67 | | | | 26,036,750 | 186,416 |

[1] Includes 16.02 miles of elevated track.
[2] Not including capitalization of 22.80 miles leased from a steam railway company.
[3] Not including capitalization of 12.79 miles leased from a steam railway company.
[4] Not including capitalization of Denver, Lakewood, and Golden Railroad Company, having 6 miles of single track.
[5] This company has a lighting plant, the capitalization based on which is included.
[6] Including 67.02 miles of elevated track and 178.89 miles of conduit trolley track.
[7] Elevated track.
[8] Including 85.08 miles of conduit trolley track.

The table shows a certain rough parallelism between population and the amount of net capital liabilities per mile of track, though there are several conspicuous exceptions. The heaviest net capitalization is found in Greater New York, where each mile of street railway is represented on the average by $259,542 of securities. It will be observed that a considerable amount of the trackage of the Brooklyn Rapid Transit Company, which is included in the table, is elevated, and that some of the other New York companies have much underground trolley track. The net capitalization of the Interurban Street Railroad Company in New York, combined with that of the subsidiary companies which it directly operates (excluding the Third avenue lines

and several others which the Interurban controls in other ways), represents an average of $494,399 per mile of track owned by these companies, the highest average reported for any important surface railway system. This system comprises 198.74 miles of track, of which 131.13 miles is operated by conduit trolley. Nearly all the rest of the trackage, however, is operated by animal power. The capitalization of this system may be contrasted with that of the railways of the city of Washington, two-thirds of whose trackage is of the underground conduit type, which are capitalized at $186,416 per mile. It must be noted, however, that the lighter traffic of the Washington railways permits a smaller investment per mile in equipment than is required for the denser traffic of the Interurban railway; and again, that the Interurban company has converted to electric traction a larger amount of cable trackage than ever existed in Washington. Other causes, already mentioned, which tend to increase the cost of construction of street railways in the greatest cities, apply with special force to New York.

Several cities, however, in which only overhead trolley construction prevails, report a very high ratio of net capitalization to trackage. The railways in the great urban center in northern New Jersey are capitalized at $220,383 per mile; those of St. Louis, at $198,647; those of Pittsburg, at $185,170; those of Baltimore, at $182,009; and those of Philadelphia, at $165,085. These figures contrast strikingly with the capitalization of the railways of Boston and the adjoining municipalities, which amounts to only $97,353 per mile of track. The capitalization of the Boston lines is indeed less in proportion to the trackage than that of railways in most smaller cities of more than 100,000 population. This urban center is fifth in point of size in the United States, and its leading railway system is quite equal in its physical characteristics to that in any of the other cities just named; moreover, the system includes 16 miles of elevated track. It carries more passengers per mile of track than the railways in any of the other five centers mentioned except Philadelphia. The trackage is almost altogether located within strictly urban areas. There has perhaps, however, been less reconstruction and waste of capital in Boston than in some of the other leading cities, especially in New York.

Notwithstanding the fact that there is a considerable amount of costly cable trackage in Chicago, the ratio of the net capitalization of surface street railways in that city to their trackage is less than that of most cities of more than 200,000 population, amounting to $109,537 per mile of track. The most extensive surface system in Chicago, however, the Union Traction Company, has net capital liabilities, including that of lessor lines, of $268,577 per mile. The comparatively low average for the city is partly accounted for by the fact that the Chicago City Railway Company, with 222.5 miles of track, has kept its capitalization at the relatively conservative figure of $18,000,000, or $80,899 per mile. Moreover, there are several Chicago companies which operate in the thinly settled parts of the city and its suburbs, where the cost of construction is much less than in the heart of the city.

The amount of net capital liabilities per mile of track in most of the cities of from 100,000 to 500,000 population is between $100,000 and $150,000. The only cities of this size which show a capitalization of less than $100,000 per mile are Buffalo, N. Y.; Denver, Colo.; Los Angeles and Oakland, Cal., the companies in all of which cities operate a large amount of interurban and suburban trackage; and also Louisville, Ky.; Omaha, Nebr.; Memphis, Tenn.; Providence, R. I.; and Rochester, N. Y. The lowest ratio of net capitalization to trackage is reported for Memphis, but the railways of that city were in the hands of a receiver at the time of the census investigation and part of their securities had been wiped out of existence. The street railways of San Francisco, Cal., which have about one-third of their trackage operated by cable, are capitalized at $140,985 per mile of track.

# CHAPTER V.

## FINANCIAL OPERATIONS.

Of the 817 operating street and interurban railway companies 18 failed to furnish information regarding their financial transactions. These 18 companies operated 378.9 miles of track, about 1.7 per cent of the total mileage. The names of these companies are shown below, together with their mileage and the number of passengers carried by them.

*Companies that failed to report data regarding financial transactions.*

| STATE. | Name of company. | Miles of single track. | Fare passengers. |
|---|---|---|---|
| Total .... | ..... | 378.90 | 44,280,436 |
| Arizona ..... | Phoenix Railway Company ..... | 12.00 | 750,000 |
| Colorado ..... | Boulder Railway and Utility Company.... | 4.08 | (1) |
| Connecticut... | New York, New Haven and Hartford Railroad Company, New Canaan Branch. | 8.63 | 204,900 |
| Connecticut... | New York, New Haven and Hartford Railroad Company, Berlin system. | 25.89 | 1,645,008 |
| Illinois ..... | South Chicago City Railway Company .... | 38.42 | 4,532,047 |
| Illinois ..... | Galesburg Electric Motor and Power Company. | 17.00 | 1,750,000 |
| Indiana ..... | Hammond, Whiting and East Chicago Company. | 24.90 | 1,956,616 |
| Kansas ..... | Kansas City-Leavenworth Electric Railway Company. | 39.00 | (1) |
| Massachusetts. | New York, New Haven and Hartford Railroad Company, Nantasket Branch. | 89.33 | 1,089,810 |
| New Jersey.... | West Jersey and Seashore Railroad Company. | 19.03 | 5,206,304 |
| Ohio..... | Wellston and Jackson Belt Railway Company. | 10.50 | 928,925 |
| Rhode Island.. | New York, New Haven and Hartford Railroad Company, Providence, Warren and Bristol Branch. | 31.50 | 4,520,894 |
| South Dakota . | Rapid City Street Railway Company ..... | 2.00 | (1) |
| Virginia..... | South Side Railway and Development Company. | 12.85 | 1,248,059 |
| Virginia..... | Old Dominion Railway Company..... | 12.21 | (1) |
| Virginia..... | Richmond Traction Company ..... | 18.75 | 6,795,946 |
| Virginia..... | Richmond Passenger and Power Company. | 25.21 | 9,517,614 |
| Virginia..... | Virginia Passenger and Power Company.. | 37.60 | 4,184,313 |

[1] Not reported.

In the case of the four branches of the New York, New Haven and Hartford Railroad and the branch of the West Jersey and Seashore Railroad (Pennsylvania system) which are operated by electricity, as well as in the case of the Wellston and Jackson Belt Railway, which is controlled by the Hocking Valley Railroad Company, it was impossible to distinguish the financial operations from those of the controlling steam lines with any clearness. The five Virginia companies, three of which were taken over by the Virginia Passenger and Power Company during the census year, were unable to furnish data on account of recent changes in ownership.

In considering the financial statistics it is essential to distinguish between operating and lessor companies. A complete view of the results requires separate accounts for these classes of companies, together with combined accounts for the two classes jointly. Financial statistics for 158 of the 170 lessor companies were obtained directly from the lessor companies or from the operating companies controlling them, or from other sources. The statistics for a considerable number of the lessor companies were computed from the rentals reported as paid by the operating companies, and from information obtained from street railway journals and similar sources. These figures are in a few instances approximate only.

The inquiries in the census schedule regarding the financial transactions of operating companies followed closely the standard form of accounting prescribed by the Street Railway Accountants' Association of America. The majority of the railway companies, including nearly all the more important ones, now keep their accounts in accordance with these forms. In those cases in which companies did not follow the standard form, the agents of the Bureau of the Census, in conference with the officials of the respective companies, rearranged the items of receipts and expenditures and the balance sheet entries, as shown by the books of the companies, in such a way as to conform to the requirements of the schedule. The financial statistics in general represent, therefore, precise bookkeeping records and are in no sense estimates.

### I.

#### GENERAL INCOME ACCOUNT.

*Condensed income account for operating companies, classified according to power.*—Table 25 gives a condensed income account for all operating street and interurban railway companies in the United States, and also for the several classes of such railways, as based upon power used.

TABLE 25.—CONDENSED INCOME ACCOUNT FOR OPERATING COMPANIES, CLASSIFIED ACCORDING TO POWER: 1902.[1]

| | Total. | ELECTRIC, SURFACE. | | | Animal. | Steam and electric elevated. | Cable, surface, and inclined planes. | Steam, surface. |
|---|---|---|---|---|---|---|---|---|
| | | Without commercial lighting. | With commercial lighting. | Part time. | | | | |
| Number of companies | 799 | 556 | 112 | 57 | 52 | 5 | 14 | 3 |
| Gross income | $250,504,627 | $206,261,288 | $22,418,065 | $2,475,365 | $1,477,294 | $16,831,892 | $1,024,873 | $15,850 |
| Operating earnings | 247,553,999 | 204,076,037 | 22,088,656 | 2,475,365 | 1,475,901 | 16,397,867 | 1,024,323 | 15,850 |
| Operating expenses | 142,312,597 | 118,236,568 | 12,834,941 | 1,439,174 | 1,077,736 | 8,151,926 | 552,812 | 19,440 |
| Net earnings | 105,241,402 | 85,839,469 | 9,253,715 | 1,036,191 | 398,165 | 8,245,941 | 471,511 | [2]3,590 |
| Income from other sources | 2,950,628 | 2,185,251 | 329,409 | ..... | 1,393 | 434,025 | 550 | ..... |
| Gross income less operating expenses | 108,192,030 | 88,024,720 | 9,583,124 | 1,036,191 | 399,558 | 8,679,966 | 472,061 | [2]3,590 |
| Deductions from income, total | 77,595,053 | 65,775,778 | 6,007,847 | 560,012 | 362,018 | 4,720,135 | 162,104 | 7,159 |
| Taxes | 13,078,899 | 10,831,931 | 733,575 | 50,739 | 71,308 | 1,343,547 | 47,245 | 559 |
| Interest, total | 38,085,911 | 29,084,550 | 4,849,800 | 508,070 | 227,589 | 3,294,543 | 114,759 | 6,600 |
| On funded debt | 35,223,284 | 26,669,877 | 4,619,145 | 435,975 | 164,947 | 3,227,427 | 105,913 | ..... |
| On other debt | 2,862,627 | 2,414,673 | 230,655 | 72,095 | 62,642 | 67,116 | 8,846 | 6,600 |
| Rental of leased lines | 25,518,225 | 25,371,536 | 47,413 | 583 | 63,101 | 35,592 | ..... | ..... |
| Miscellaneous deductions | 912,018 | 487,761 | 377,059 | 620 | 25 | 46,453 | 100 | ..... |
| Net income | 30,596,977 | 22,248,942 | 3,575,277 | 476,179 | 37,540 | 3,959,831 | 309,957 | [2]10,749 |
| Dividends | 15,882,110 | 12,193,247 | 813,091 | 46,500 | 68,877 | 2,594,195 | 166,200 | ..... |
| Surplus | 14,714,867 | 10,055,695 | 2,762,186 | 429,679 | [2]31,337 | 1,365,636 | 143,757 | [2]10,749 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

[2] Deficit.

It will be understood by anyone acquainted with bookkeeping methods that an income account does not purport to show the actual cash receipts and disbursements during the year. It presents instead the receipts and expenditures properly assignable to the year's operations. Thus the items of taxes, interest, and rentals represent the amount of such obligations accrued during the year, whether wholly paid within that time or not. Similarly the item of dividends represents dividends declared during the year, no matter when paid. Money spent on capital account, moneys borrowed and repaid, and all bookkeeping duplications or transfers are omitted.

*Operating earnings and gross income.*—By the term "operating earnings" are designated all receipts of the companies from the actual operation of the railway property which they own, or of light and power plants connected therewith, but excluding income from sources other than railway property. The total operating earnings of the street and interurban railways reporting to the Bureau of the Census in 1902 amounted to $247,553,999. To this must be added, to show the gross income, the income from other sources, which consists chiefly of interest and dividends on securities held by the railway companies, but which also represents, to some extent, interest on deposits of money, returns from investments in real estate not used for operating purposes, etc. A large proportion of the securities held by street and interurban railway companies are those of other such companies. The gross income of the operating street railways as a whole, therefore, includes a small amount of duplication, the earnings of certain companies becoming in part additions to the income of other companies. The gross income of all the railways, consisting of operating earnings plus income from other sources, amounted to $250,504,627.

More than four-fifths of the aggregate operating earnings were those of full-time companies operating surface railways that were mainly electric and not operating commercial lighting plants. The operating earnings of electric railway companies having light and power plants were less than one-ninth as great as that of full-time electric surface companies without such plants. The operating earnings of the five strictly elevated railways amounted to 6.6 per cent of the aggregate for the United States. The aggregate earnings of all other classes of street railways were comparatively small, and those of the three strictly steam railways insignificant.

*Distribution of income.*—The net earnings from operation of all street and interurban railways, calculated by deducting operating expenses from the gross earnings from operation, were $105,241,402. The "gross income less operating expenses," as designated in Table 25 and later tables, is made up of the net earnings from operation plus the income from miscellaneous sources.[1] It amounted to $108,192,030 in 1902, the income from other sources constituting 2.7 per cent of this amount.

The distribution of the gross income of street and interurban railway companies among various objects differs materially among the different classes of railways distinguished in Table 25. These differences may be grasped more readily by the aid of Table 26, which shows, for each group of companies and for all companies combined, the percentages which the operating expenses and the various other items of disbursement bear to the gross income.

[1] The designation of this item in the tables and text is that adopted by the Street Railway Accountants' Association. The Interstate Commerce Commission designates the corresponding item "net earnings and income."

TABLE 26.—PERCENTAGE DISTRIBUTION OF GROSS INCOME OF OPERATING COMPANIES, CLASSIFIED ACCORDING TO POWER: 1902.

| | Total. | ELECTRIC, SURFACE. | | | Animal. | Steam and electric, elevated. | Cable, surface, and inclined planes. | Steam, surface. |
|---|---|---|---|---|---|---|---|---|
| | | Without commercial lighting. | With commercial lighting. | Part time. | | | | |
| Gross income | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Operating expenses | 56.8 | 57.3 | 57.3 | 58.1 | 72.9 | 48.4 | 54.0 | 122.7 |
| Taxes | 5.2 | 5.3 | 3.3 | 2.1 | 4.8 | 8.0 | 4.6 | 3.5 |
| Interest, total | 15.2 | 14.1 | 21.6 | 20.5 | 15.4 | 19.6 | 11.2 | 41.6 |
| On funded debt | 14.1 | 12.9 | 20.6 | 17.6 | 11.2 | 19.2 | 10.3 | ..... |
| On other debt | 1.1 | 1.2 | 1.0 | 2.9 | 4.2 | 0.4 | 0.9 | 41.6 |
| Rental of leased lines | 10.2 | 12.3 | 0.2 | (1) | 4.8 | 0.2 | ..... | ..... |
| Miscellaneous deductions | 0.4 | 0.2 | 1.7 | (1) | (1) ... | 0.3 | (1) | ..... |
| Dividends | 6.3 | 5.9 | 3.6 | 1.9 | 4.7 | 15.4 | 16.2 | ..... |
| Surplus | 5.9 | 4.9 | 12.3 | 17.4 | [2]2.1 | 8.1 | 14.0 | [2]67.8 |

[1] Less than one-tenth of 1 per cent.

[2] Deficit.

It will be observed that, for all operating companies combined, operating expenses amount to 56.8 per cent of the gross income. The ratio of operating expenses to operating earnings is discussed elsewhere (pages 83 and 84). The total "deductions from income," or "fixed charges," as they are often called, amount to $77,595,053. This sum, which is nearly three-fourths of the "gross income less operating expenses," is about 31 per cent of the gross income itself.

Taxes, licenses, and other payments to public authorities, taken together, constitute a larger proportion of gross and of net earnings than is generally supposed. These public charges in 1902 were equal to a little less than one-eighth of the gross income less operating expenses and to 5.2 per cent of the gross income. The amount going to taxes was relatively less in the case of electric railways furnishing commercial light and power than in the case of other classes of railways. This is chiefly due to the fact that companies of this type are, with a few exceptions, operating in cities and towns of moderate size where the rates of taxes are low. The taxes of the elevated railways are proportionately the highest, amounting to 8 per cent of their gross income.

The classification of taxes paid by operating companies, according to the returns of the companies, is as follows: Taxes on real and personal property, $5,835,542, or 44.6 per cent of the total taxes; taxes on capital stock, $2,931,252, or 22.4 per cent; taxes on earnings, $2,719,287, or 20.8 per cent; miscellaneous taxes, licenses, and public payments, $1,592,818, or 12.2 per cent. It may be remarked, however, that the names of the various classes of taxes in different states are not always uniform or consistent with accurate definitions. The statistics do not show to what extent the payments made by street railway companies represent a special return to the local government for franchise privileges granted. Beyond question, however, much the greater part of the payments to public authorities consists of ordinary taxes, levied upon the same basis as taxes on other forms of property or on corporations not enjoying special franchise privileges.[1]

[1] A presentation of the leading requirements of laws and franchises regarding special payments for franchise privileges will be found in Part I, Chapter IX.

The items of interest on bonds or funded debt and interest on notes and other floating debt amounted, as shown in Table 25, to $38,085,911, or no less than 15.2 per cent of the gross income, and 35.2 per cent of the gross income less operating expenses. This sum is slightly larger than the amount which street railway companies actually paid on their obligations during the census year, as a considerable number of railways failed partly or wholly to pay the interest due. In some instances, indeed, companies still owed back interest for a number of years. The balance sheets of the operating and lessor companies combined showed the total amount of interest unpaid at the end of the fiscal year 1902 to be $14,497,670; but, as appears from the schedules, part of this represented merely accrued interest—not yet due—of wholly solvent companies, and another part represented interest due on coupons not yet presented for payment. It appears probable, however, that the greater part of the aggregate back interest reported consisted of interest which the companies could not pay. The item of interest in the income account was conspicuously large for electric railway companies furnishing commercial lighting and for elevated railways.

The great importance of the method of lease as a means of combination among street railways may be judged from the fact that the rentals paid by operating companies to lessor companies amounted to $25,518,225 in 1902, or nearly one-fourth of the gross income less operating expenses. The rental payments are almost wholly confined, however, to companies that operate electric surface railways and that do not furnish commercial lighting.

*Sinking and depreciation funds.*—A noteworthy feature of the income accounts of nearly all street railways is the absence of any provision for depreciation funds or for sinking funds to redeem bonds. The total amount of "miscellaneous deductions" from income—not covered by the specified heads already mentioned—was only $912,018, and only a fraction of this sum represented systematic appropriations to depreciation or sinking funds. In this respect the American street railway companies form a striking contrast with those in most foreign countries and an even more striking contrast with foreign municipal undertakings. American

steam railways are adopting to an increasing extent the policy of providing at least sinking funds for their funded debt.

From the standpoint of the investors it is sometimes considered preferable not to provide depreciation and sinking funds in the case of a street railway company that possesses an unlimited franchise and that operates in a city with a large and steadily increasing population. The investors in such case know that the value of their franchise is steadily appreciating and that the appreciation tends to offset any depreciation in the physical properties. They feel assured that the bonds of the company as they fall due can be renewed with little difficulty and possibly at a lower rate of interest. It may therefore be deemed wise policy to provide the capital necessary for renewals and replacements by the issue of additional securities rather than by appropriating part of the earnings for depreciation.

These considerations, however, apply with much less force in the case of many railways which are not so favorably situated or are of less modern construction, as the present properties held by them may depreciate greatly in value. In some cases a large part of the investment has been made by the issue of bonds, and when these fall due they may more than equal the value of the depreciated plant. Under such circumstances sound finance would seem to demand sinking and depreciation funds. This is still more conspicuously true of those companies whose franchises are limited to a term of years, especially if there be no provision in the franchise for compensation to the present holders for the value of their tangible properties. Delegates to the American Street Railway Accountants' Association have frequently emphasized the desirability of sinking and depreciation funds.

It may be remarked, however, that the practice of many American street and interurban railway companies, of carrying a considerable fraction of their net earnings to surplus rather than distributing them in dividends, may in some measure take the place of the systematic setting aside of depreciation and sinking funds. The net surplus of the operating street and interurban railways for the census year was $14,714,867, which was nearly as much as the dividends declared by such companies. In many cases permanent improvements and extensions are made out of such surplus earnings. Though, usually, if the earning capacity will justify it, such expenditures are later capitalized by the declaration of a stock dividend or by some similar device, so as to raise capitalization above the actual value of the property, yet, from the standpoint of the existing owners, the method of paying for permanent improvements out of surplus amounts practically to the assignment of a part of the current earnings in a way which offsets depreciation.

*Net income and dividends.*—By net income is meant the amount remaining after deducting from the "gross income less operating expenses" the various fixed charges. The combined net income of all operating railway companies in 1902 was $30,596,977. As appears from Table 37, the total net income of the 578 companies which reported a net income amounted to $34,352,684, while the total net deficit of the 220 companies which reported a deficit aggregated $3,755,707. It is the difference between these sums, $30,596,977, that is shown in Table 25 under the head of "net income."

It is scarcely necessary to point out that the net income thus calculated in no sense represents the profitableness of the street and interurban railway industry. The item of net earnings is much more accurately indicative of the true profits. To understand why this is so one need only recall that interest on bonds is as truly a part of the return to street railway investors as dividends. Moreover, rentals paid to lessor companies, while they are designated as fixed charges by the operating companies, are likewise, strictly speaking, a return to street railway capital, since they become interest and dividends on the securities of the lessor companies. This point is the more obvious in those numerous cases where the operating and lessor companies are virtually owned by the same persons.

The amount of dividends paid by operating street railway companies in 1902—$15,882,110—constituted only 6.3 per cent of their gross income and about one-seventh of the gross income less operating expenses. The proportion of dividends, exclusive of part-time railways, was least among full-time electric railway companies furnishing commercial lighting. It was much greater in the case of elevated and cable railways than among other classes. Full-time electric surface railways not furnishing commercial lighting, paid out in dividends 5.9 per cent of their gross income in 1902.

*Income account for lessor companies.*—Table 27 shows, for the United States as a whole, a condensed income account of the nonoperating lessor railway companies. Several of the operating companies, such as the Third Avenue Railroad Company and its affiliated lines in New York city, are leased to other operating companies at a rental fixed for the present at the amount of net income remaining after the payment of expenses and fixed charges. Such companies are included with the independent operating companies, their accounts being in precisely the same form.

The income of nonoperating lessor companies consists almost wholly of the rentals received from operating companies. These rentals usually take the form of a fixed rate of interest on the bonds of the lessor company and a fixed rate of dividend (if any) on its stocks, though in some instances the rental is a lump sum. Many operating companies treat the funded debt of their lessor companies as though it were their own direct obligation, and in their income account, class the interest thereon with other interest rather than with

rentals. The Bureau of the Census has, however, uniformly segregated the interest on the debt of lessor companies, including it with rentals in the accounts of operating companies and treating it in the accounts of the lessor companies both as an income and as an expenditure. As a matter of fact, both interest on bonds and dividends on stocks of lessor companies are frequently, perhaps usually, paid directly to the security holders by the operating company.

TABLE 27.—*Income account for nonoperating lessor companies: 1902.*[1]

| | |
|---|---|
| Number of companies | 158 |
| Gross income | $26,138,899 |
| Rentals from operating companies | 26,116,884 |
| Income from other sources | 22,015 |
| Deductions from income | 8,779,294 |
| Taxes | 287,436 |
| Interest on funded debt | 8,355,677 |
| Interest on other debt | 20,882 |
| Maintenance of organization and miscellaneous disbursements | 115,299 |
| Net income | 17,359,605 |
| Dividends | 17,157,061 |
| Surplus | 202,544 |

[1] Exclusive of 12 companies which failed to furnish this information.

The amount of rentals reported as received by lessor companies, $26,116,884, does not correspond with the amount reported (see Table 25) as paid in rentals by operating companies, which was $25,518,225. The discrepancy is due in part to imperfect information regarding lessor companies, and in part to differences in methods of accounting and in the periods covered by the reports.

The compensation paid to lessor companies for the use of their properties and franchises varies greatly. Sometimes the compensation is purely nominal, as, for instance, in a number of cases in which the lease method of control is a mere form, the securities of the lessor being, as a matter of fact, the property of the operating company. In many leases the sole compensation to the lessor company consists of the interest on its funded debt. It sometimes happens in such cases that the operating company owns part, or all, of the stocks of the lessor. The rate of rental paid to stockholders varies from a fraction of 1 per cent to as high as 72 per cent on the paid-up capital stock in the case of one lessor company in Philadelphia where only a small portion of the stock was paid up. The amount of dividends of lessor companies in 1902 was $17,157,061.

Ordinarily the taxes on the property of lessor companies are paid by the operating companies directly, but in a few instances, by special arrangement or on account of differences in bookkeeping methods, the taxes are reported as paid by the lessor companies.

*Condensed income account for operating and lessor companies combined.*—Table 28 presents a combined income account of all operating and lessor companies considered as one system, and shows the result of the financial operations as they would stand if the same amount and kind of business had been done but if there were no lessor companies.

TABLE 28.—*Condensed income account for operating and lessor companies combined: 1902.*[1]

| | |
|---|---|
| Number of companies | 957 |
| Gross income | $250,526,642 |
| Operating earnings | 247,553,999 |
| Operating expenses | 142,312,597 |
| Net earnings from operation | 105,241,402 |
| Income from other sources | 2,972,643 |
| Gross income less operating expenses | 108,214,045 |
| Deductions from income, total | 60,849,231 |
| Taxes | 13,366,335 |
| Interest, total | 46,462,470 |
| On funded debt | 43,578,961 |
| On other debt | 2,883,509 |
| Miscellaneous deductions | 1,020,426 |
| Net income | 47,364,814 |
| Dividends | 33,039,171 |
| Surplus | 14,325,643 |

[1] Exclusive of reports for 30 companies which failed to furnish this information.

The only important differences between these figures and those for operating companies alone consist in the elimination of the item of rentals paid and in the distribution of the amount of rentals under the two heads of interest on funded debt and dividends. The distribution of the gross income of both operating and lessor companies among various objects is shown by percentages in Table 29.

TABLE 29.—*Percentage distribution of gross income for operating and lessor companies combined: 1902.*

| | Percentage. |
|---|---|
| Gross income | 100.0 |
| Operating expenses | 56.8 |
| Taxes | 5.3 |
| Interest, total | 18.6 |
| On funded debt | 17.4 |
| On other debt | 1.2 |
| Miscellaneous deductions | 0.4 |
| Dividends | 13.2 |
| Surplus | 5.7 |

Regarding the operating and lessor street railways as one system, it is found that the amount of interest accrued on funded debt was $43,578,961, which is 17.4 per cent of the gross income of all the companies, and a little more than two-fifths of the gross income less operating expenses. The net income and surplus shown in this table are not the same as would be obtained by simply adding these items for operating and lessor companies, respectively, for the reason, heretofore stated, that the income from rentals as reported by lessor companies does not precisely agree with the amount of rentals paid as reported by the operating companies. The dividends paid by operating companies and lessor companies combined amounted to 13.2 per cent of their gross income, or to 30 per cent of the income remaining after the deduction of operating expenses. The amount paid as interest on funded debt and as dividends combined, representing the total payments on the capital liabilities, is equal to 30.6 per cent of the gross income. Roughly speaking, about that proportion of each street railway fare represents the immediate return to capital invested.

*Condensed income account for operating companies classified according to population.*—Table 30 shows a

condensed income account for operating companies in urban centers, classified according to population, together with the similar account for fast, long interurban and other interurban railways.

TABLE 30.—CONDENSED INCOME ACCOUNT FOR OPERATING COMPANIES, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 799 | 65 | 47 | 83 | 312 | 53 | 239 |
| Gross income | $250,504,627 | $123,289,266 | $51,063,907 | $22,828,007 | $12,005,511 | $10,165,768 | $31,152,168 |
| Operating earnings | 247,553,999 | 120,837,007 | 51,008,983 | 22,728,795 | 11,879,327 | 10,161,736 | 30,938,151 |
| Operating expenses | 142,312,597 | 67,300,048 | 27,308,769 | 13,480,577 | 8,088,172 | 6,076,983 | 20,058,048 |
| Net earnings | 105,241,402 | 53,536,959 | 23,700,214 | 9,248,218 | 3,791,155 | 4,084,753 | 10,880,103 |
| Income from other sources | 2,950,628 | 2,452,259 | 54,924 | 99,212 | 126,184 | 4,032 | 214,017 |
| Gross income, less operating expenses | 108,192,030 | 55,989,218 | 23,755,138 | 9,347,430 | 3,917,339 | 4,088,785 | 11,094,120 |
| Deductions from income, total | 77,595,053 | 45,785,422 | 12,819,488 | 5,057,079 | 2,340,694 | 3,130,845 | 8,461,525 |
| Taxes | 13,078,899 | 7,755,582 | 2,608,650 | 823,964 | 340,228 | 243,539 | 1,306,936 |
| Interest, total | 38,085,911 | 14,684,921 | 8,712,948 | 3,761,836 | 1,938,948 | 2,726,608 | 6,260,650 |
| On funded debt | 35,223,284 | 13,683,195 | 8,281,098 | 3,492,362 | 1,717,822 | 2,557,798 | 5,491,009 |
| On other debt | 2,862,627 | 1,001,726 | 431,850 | 269,474 | 221,126 | 168,810 | 769,641 |
| Rental of leased lines | 25,518,225 | 23,232,949 | 1,152,209 | 365,240 | 26,845 | 51,930 | 689,052 |
| Miscellaneous deductions | 912,018 | 111,970 | 345,681 | 106,039 | 34,673 | 108,768 | 204,887 |
| Net income | 30,596,977 | 10,203,796 | 10,935,650 | 4,290,351 | 1,576,645 | 957,940 | 2,632,595 |
| Dividends | 15,882,110 | 5,290,435 | 6,344,101 | 1,485,654 | 301,575 | 300,624 | 2,159,721 |
| Surplus | 14,714,867 | 4,913,361 | 4,591,549 | 2,804,697 | 1,275,070 | 657,316 | 472,874 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

The following table shows the percentage which each item of disbursement bears to the gross income:

TABLE 31.—*Percentage distribution of gross income of operating companies, classified according to population: 1902.*

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Gross income | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Operating expenses | 56.8 | 54.6 | 53.5 | 59.0 | 67.4 | 59.8 | 64.4 |
| Taxes | 5.2 | 6.3 | 5.1 | 3.6 | 2.8 | 2.4 | 4.2 |
| Interest, total | 15.2 | 11.9 | 17.1 | 16.5 | 16.2 | 26.8 | 20.1 |
| On funded debt | 14.1 | 11.1 | 16.2 | 15.3 | 14.3 | 25.1 | 17.6 |
| On other debt | 1.1 | 0.8 | 0.9 | 1.2 | 1.9 | 1.7 | 2.5 |
| Rentals of leased lines | 10.2 | 18.8 | 2.2 | 1.6 | 0.2 | 0.5 | 2.2 |
| Miscellaneous deductions | 0.4 | 0.1 | 0.7 | 0.5 | 0.8 | 1.1 | 0.7 |
| Dividends | 6.3 | 4.3 | 12.4 | 6.5 | 2.5 | 2.9 | 6.9 |
| Surplus | 5.9 | 4.0 | 9.0 | 12.3 | 10.6 | 6.5 | 1.5 |

As appears from Table 30 about 49 per cent of the total operating earnings of all street railways were received by the 65 companies in urban centers of more than 500,000 inhabitants. These companies, moreover, received more than four-fifths of the total amount of income from sources other than the operation of railway, light, and power plants. This unequal distribution of "income from other sources" is explained by the fact that the railway companies of the great cities, by virtue of the consolidations which have taken place, hold much larger amounts of the securities of other railway companies than are held by the companies in smaller urban centers. The operating earnings of the fast, long interurban railways amounted to $10,161,736—about 4.1 per cent of the total for the country.

Table 31 shows that the manner in which the gross income of railway companies in the different population groups is distributed varies considerably. The proportion of the gross income going to operating expenses is much less in the two groups of cities of more than 100,000 inhabitants than in the other groups. This is due to the economy of operation in large cities, as more fully shown later on. On the other hand, the deductions from income, including taxes, interest on bonds, rentals, and minor expenditures, constituted a greater proportion of the gross income of operating companies in the largest cities than elsewhere, a fact which is chiefly due to the great amount of rentals paid to lessor companies in such cities.

The amount paid for taxes and other public charges in urban centers of more than 500,000 inhabitants was 6.3 per cent of gross income of the operating companies in those centers, or 13.9 per cent of the gross income less operating expenses. The proportion going to taxes decreases in each of the successive urban groups, until in urban centers of less than 25,000 inhabitants it falls to only 2.8 per cent of gross income, taxes being, however, nearly 9 per cent of the income remaining after the deduction of operating expenses. Since street railways in small cities have a higher ratio of operating expenses to operating earnings than those in large cities, they can not properly be expected to pay as heavy taxes. An important reason for the increase in the ratio of taxes to net earnings with increasing population is that, as cities become larger, the functions of government expand, and the expenses of government grow, ordinarily, not only faster than population, but faster than taxable property, so that the tax rate tends to increase. In a considerable number of the larger cities, moreover, the street railway companies are required to make special payments in addition to the taxes paid alike by railways and by ordinary forms of property and other classes of corporations. Such

special payments are seldom required in smaller towns. The proportion of gross income going to taxes is even lower for long, fast interurban railways than for street railways in the smallest urban centers. This is presumably in part due to the fact that the rate of taxation in the rural communities through which these interurban lines run is generally lower than in urban communities. The higher proportion of taxes shown for other interurban railways would then be partly explicable by the greater extent to which their trackage lies within municipal limits. It is probable that the difference in the relative burden of taxation in the various classes of cities and on the two classes of interurban railways is attributable in some measure to differences in the efficiency and judgment of tax assessors. There can be little doubt, however, that the more profitable railways of the large cities can afford to pay as taxes a higher proportion of their gross earnings, and even of their net earnings, than the railways in small towns and rural districts.

The most striking point in regard to the deductions from income is the enormous amount of rentals paid by operating companies to lessor companies in urban centers of more than 500,000 inhabitants. Fully nine-tenths of the rental payments of all companies are made by the companies in the seven largest urban centers. There has been more occasion and cause for combination and consolidation in the large cities, where formerly many street railways were in operation, than in smaller places. Rentals constitute 18.8 per cent of the gross income of operating railways in the first group of urban centers, while in none of the other groups do they exceed 2.2 per cent.

The amount paid for interest on funded debt constitutes a smaller proportion of gross income, and likewise a smaller proportion of gross income less operating expenses, among operating companies in urban centers of the first group than elsewhere. This is due to the fact that in such cities a large part of the debt of the railways is that of the lessor companies rather than that of the operating companies. The interest which lessor companies pay is received from the operating companies in the form of rentals. The proportion of interest to income is much greater for fast interurban railways than for those of any other group.

The operating railways in cities of the first group have, proportionately, less net income and dividends than in any other group except that of "other" interurban railways. Here again dividends of operating companies in large cities are reduced, because a large part of the stocks based on the railway property are those of lessor companies, and the dividends which the latter pay are deducted from the income of operating companies in the form of rentals. In the largest cities the net income of operating companies amounts to only 8.3 per cent of their gross income, while in cities of from 100,000 to 500,000 people the net income is 21.4 per cent of the gross income. In the first group dividends constitute only 4.3 per cent of gross income, while in urban centers of the next rank dividends are 12.4 per cent. The ratio of dividends to gross income and to gross income less operating expenses is least in urban centers of less than 25,000 inhabitants.

*Condensed income account for full-time electric surface railway companies, without commercial lighting, classified according to population.*—Table 32 shows a condensed income account of full-time surface railway companies having primarily electric traction and not furnishing commercial lighting, classified according to population of urban centers served.

TABLE 32.—CONDENSED INCOME ACCOUNT FOR FULL-TIME ELECTRIC SURFACE RAILWAY COMPANIES, WITHOUT COMMERCIAL LIGHTING, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 556 | 47 | 38 | 66 | 165 | 40 | 200 |
| Gross income | $206,261,288 | $104,912,972 | $45,613,791 | $15,399,948 | $6,385,919 | $7,640,642 | $26,308,016 |
| Operating earnings | 204,076,037 | 102,896,131 | 45,589,368 | 15,356,895 | 6,377,469 | 7,640,642 | 26,215,532 |
| Operating expenses | 118,236,568 | 58,089,586 | 24,684,272 | 9,366,539 | 4,388,638 | 4,579,621 | 17,127,912 |
| Net earnings from operation | 85,839,469 | 44,806,545 | 20,905,096 | 5,990,356 | 1,988,831 | 3,061,021 | 9,087,620 |
| Income from other sources | 2,185,251 | 2,016,841 | 24,423 | 43,053 | 8,450 | ..... | 92,484 |
| Gross income, less operating expenses | 88,024,720 | 46,823,386 | 20,929,519 | 6,033,409 | 1,997,281 | 3,061,021 | 9,180,104 |
| Deductions from income, total | 65,775,778 | 40,670,995 | 11,314,425 | 3,187,746 | 1,221,224 | 2,374,732 | 7,006,656 |
| Taxes | 10,831,931 | 6,335,643 | 2,399,990 | 578,866 | 183,729 | 189,522 | 1,144,181 |
| Interest, total | 29,084,550 | 11,134,669 | 7,690,277 | 2,140,530 | 993,147 | 2,092,421 | 5,033,506 |
| On funded debt | 26,669,877 | 10,267,696 | 7,282,840 | 1,951,323 | 862,827 | 1,959,117 | 4,346,074 |
| On other debt | 2,414,673 | 866,973 | 407,437 | 189,207 | 130,320 | 133,304 | 687,432 |
| Rental of leased lines | 25,371,536 | 23,135,166 | 1,152,209 | 365,240 | 25,000 | 51,347 | 642,574 |
| Miscellaneous deductions | 487,761 | 65,517 | 71,949 | 403,110 | 19,348 | 41,442 | 186,395 |
| Net income | 22,248,942 | 6,152,391 | 9,615,094 | 2,845,663 | 776,057 | 686,289 | 2,173,448 |
| Dividends | 12,193,247 | 2,610,240 | 5,933,901 | 1,194,250 | 199,280 | 201,124 | 2,054,452 |
| Surplus | 10,055,695 | 3,542,151 | 3,681,193 | 1,651,413 | 576,777 | 485,165 | 118,996 |

[1] Exclusive of reports for 16 companies which failed to furnish this information.

The percentages which the various items of disbursements bear to the gross income are shown in the following table for the same class of railways as in Table 32. These statistics present a few rather important differences as regards three of the urban groups from those for all companies combined in the preceding tables.

TABLE 33.—*Percentage distribution of gross income of full-time electric surface railway companies, without commercial lighting, classified according to population: 1902.*

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Gross income | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Operating expenses | 57.3 | 55.4 | 54.1 | 60.8 | 68.7 | 60.0 | 65.1 |
| Taxes | 5.3 | 6.0 | 5.3 | 3.8 | 2.9 | 2.5 | 4.4 |
| Interest, total | 14.1 | 10.6 | 16.9 | 13.9 | 15.6 | 27.4 | 19.1 |
| On funded debt | 12.9 | 9.8 | 16.0 | 12.7 | 13.5 | 25.6 | 16.5 |
| On other debt | 1.2 | 0.8 | 0.9 | 1.2 | 2.1 | 1.8 | 2.6 |
| Rentals of leased lines | 12.3 | 22.0 | 2.5 | 2.4 | 0.4 | 0.7 | 2.4 |
| Miscellaneous deductions | 0.2 | 0.1 | 0.1 | 0.7 | 0.3 | 0.5 | 0.7 |
| Dividends | 5.9 | 2.5 | 13.0 | 7.7 | 3.1 | 2.6 | 7.8 |
| Surplus | 4.9 | 3.4 | 8.1 | 10.7 | 9.0 | 6.3 | 0.5 |

It will be noticed that these full-time electric surface railways in centers of 500,000 and over show somewhat smaller proportionate payments for taxes, interest, and dividends than do street railways as a whole, and that on the other hand they show a very much larger proportionate payment for rentals. (Compare Tables 31 and 33.) These differences are largely due to the fact that the elevated railways, which are all within the largest urban centers and which are excluded from the tables now under consideration, make relatively large payments for taxes, interest, and dividends, but do not operate any lines under lease, and hence reported no rentals. The electric railways having commercial lighting plants are, for the most part, in the two classes of urban centers of less than 100,000 inhabitants. Companies with lighting plants show a larger proportion of interest and a smaller proportion of dividends than companies without lighting plants. This is one explanation of the fact that in the last two urban groups the electric railway companies not furnishing commercial lighting show a smaller proportion of interest and a larger proportion of dividends than appear when all classes of companies are taken together.

*Combined income account for operating and lessor companies, classified according to population.*—Table 34 shows the income account for all operating and lessor companies combined, classified according to the population groups, while Table 35 shows the percentages of the various items of disbursement.

TABLE 34.—CONDENSED INCOME ACCOUNT FOR OPERATING AND LESSOR COMPANIES COMBINED, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 957 | 138 | 56 | 99 | 314 | 60 | 290 |
| Gross income | $250,526,642 | $123,310,971 | $51,064,217 | $22,828,007 | $12,005,511 | $10,165,768 | $31,152,168 |
| Operating earnings | 247,553,999 | 120,837,007 | 51,008,983 | 22,728,795 | 11,879,327 | 10,161,736 | 30,938,151 |
| Operating expenses | 142,312,597 | 67,300,048 | 27,308,769 | 13,480,577 | 8,088,172 | 6,076,983 | 20,058,048 |
| Net earnings from operation | 105,241,402 | 53,536,959 | 23,700,214 | 9,248,218 | 3,791,155 | 4,084,753 | 10,880,103 |
| Income from other sources | 2,972,643 | 2,473,964 | 55,234 | 99,212 | 126,184 | 4,032 | 214,017 |
| Gross income less operating expenses | 108,214,045 | 56,010,923 | 23,755,448 | 9,347,430 | 3,917,339 | 4,088,785 | 11,094,120 |
| Deductions from income, total | 60,849,231 | 30,682,945 | 11,755,926 | 4,803,329 | 2,328,849 | 3,119,555 | 8,158,627 |
| Taxes | 13,366,335 | 8,021,181 | 2,611,881 | 824,099 | 340,228 | 243,539 | 1,325,407 |
| Interest, total | 46,462,470 | 22,465,107 | 8,798,353 | 3,868,726 | 1,953,948 | 2,767,248 | 6,609,088 |
| On funded debt | 43,578,961 | 21,460,962 | 8,366,503 | 3,598,997 | 1,732,822 | 2,598,438 | 5,821,239 |
| On other debt | 2,883,509 | 1,004,145 | 431,850 | 269,729 | 221,126 | 168,810 | 787,849 |
| Miscellaneous deductions | 1,020,426 | 196,657 | 345,692 | 110,504 | 34,673 | 108,768 | 224,132 |
| Net income | 47,364,814 | 25,327,978 | 11,999,522 | 4,544,101 | 1,588,490 | 969,230 | 2,935,493 |
| Dividends | 33,039,171 | 20,958,959 | 7,344,007 | 1,650,123 | 311,575 | 315,224 | 2,459,283 |
| Surplus | 14,325,643 | 4,369,019 | 4,655,515 | 2,893,978 | 1,276,915 | 654,006 | 476,210 |

[1] Exclusive of reports for 30 companies which failed to furnish this information.

TABLE 35.—*Percentage distribution of gross income for operating and lessor companies combined, classified according to population: 1902.*

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Gross income | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Operating expenses | 56.8 | 54.6 | 53.5 | 59.1 | 67.4 | 59.8 | 64.4 |
| Taxes | 5.3 | 6.5 | 5.1 | 3.6 | 2.8 | 2.4 | 4.3 |
| Interest, total | 18.6 | 18.2 | 17.2 | 16.9 | 16.3 | 27.2 | 21.2 |
| On funded debt | 17.4 | 17.4 | 16.4 | 15.7 | 14.4 | 25.6 | 18.7 |
| On other debt | 1.2 | 0.8 | 0.8 | 1.2 | 1.9 | 1.6 | 2.5 |
| Miscellaneous deductions | 0.4 | 0.2 | 0.7 | 0.5 | 0.3 | 1.1 | 0.7 |
| Dividends | 13.2 | 17.0 | 14.4 | 7.2 | 2.6 | 3.1 | 7.9 |
| Surplus | 5.7 | 3.5 | 9.1 | 12.7 | 10.6 | 6.4 | 1.5 |

The chief differences between this combined income account and the income account of operating companies alone lie in the items of rentals, interest, and dividends. Since lessor companies are found mostly in urban centers of the largest size, the combined income account for such centers differs materially from the income account of operating companies alone, while in the other groups little difference appears.

In urban centers of more than 500,000 inhabitants the combined "deductions from income" or fixed charges—taxes, interest, and miscellaneous deductions—for all railway companies considered as a single system are equal to 24.9 per cent of the gross income. This proportion is slightly larger than for any other urban group, but is smaller than for the two interurban groups. In the largest cities the proportion of dividends to the gross income is 17 per cent, exceeding somewhat the proportion in urban centers of the next size, and greatly exceeding the proportion in any of the other groups. All the other groups except the "other" interurban railways, however, carried a larger proportion of their gross income to surplus than the companies in the largest cities. Interest and dividends combined constitute 35.2 per cent of the gross income in the first group, as compared with 31.6 per cent in the second group, 24.1 per cent in the third group, and only 18.9 per cent in urban centers of less than 25,000 inhabitants.

*Condensed income accounts, by states.*—Table 36 shows by states the gross income of all operating companies, consisting of the operating earnings plus the income from other sources, and Table 37 presents a condensed income account for all operating street and interurban railway companies by states.

The various items of taxes and fixed charges are shown in detail for each state in Table 38.

TABLE 36.—*Gross income of operating companies, by states and territories: 1902.*[1]

| STATE OR TERRITORY. | Number of companies. | Amount. | STATE OR TERRITORY. | Number of companies. | Amount. |
|---|---|---|---|---|---|
| United States. | 799 | $250,504,627 | Missouri | 16 | $10,734,692 |
| | | | Montana | 5 | 492,023 |
| Alabama | 9 | 1,497,351 | Nebraska | 4 | 1,148,994 |
| Arkansas | 7 | 371,560 | New Hampshire | 7 | 604,131 |
| California | 35 | 9,967,838 | New Jersey | 25 | 8,176,923 |
| Colorado | 7 | 2,227,766 | New York | 96 | 60,881,780 |
| Connecticut | 21 | 4,355,775 | North Carolina | 7 | 442,467 |
| Delaware | 3 | 500,559 | Ohio | 62 | 16,599,851 |
| Florida | 6 | 529,743 | Oregon | 6 | 1,042,895 |
| Georgia | 10 | 2,375,224 | Pennsylvania | 98 | 30,357,727 |
| Illinois | 48 | 25,029,257 | Rhode Island | 7 | 2,964,260 |
| Indiana | 26 | 3,813,076 | South Carolina | 7 | 653,736 |
| Iowa | 22 | 2,403,834 | Tennessee | 8 | 1,866,835 |
| Kansas | 11 | 370,481 | Texas | 17 | 1,547,846 |
| Kentucky | 12 | 2,933,800 | Utah | 3 | 586,611 |
| Louisiana | 8 | 2,910,244 | Vermont | 9 | 249,228 |
| Maine | 19 | 1,571,562 | Virginia | 16 | 1,667,022 |
| Maryland | 10 | 4,898,627 | Washington | 8 | 2,542,906 |
| Massachusetts | 74 | 23,633,410 | West Virginia | 8 | 1,102,171 |
| Michigan | 24 | 6,521,173 | Wisconsin | 17 | 3,923,884 |
| Minnesota | 5 | 3,727,648 | All other states and territories[2] | 11 | 3,021,063 |
| Mississippi | 5 | 258,654 | | | |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

[2] Includes states and territories having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico 1.

TABLE 37.—CONDENSED INCOME ACCOUNT FOR OPERATING COMPANIES, BY STATES AND TERRITORIES: 1902.[1]

| STATE OR TERRITORY. | Number of companies. | Gross earnings from operation. | OPERATING EXPENSES. | | Net earnings from operation. | Income from other sources. | Gross income less operating expenses. | Deductions from income (taxes and fixed charges). | Net income of companies reporting net income. | Deficit of companies reporting deficit. | Net income for state. | Dividends. | Surplus. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Amount. | Percentage of earnings. | | | | | | | | | |
| United States. | 799 | $247,553,999 | $142,312,597 | 57.5 | $105,241,402 | $2,950,628 | $108,192,030 | $77,595,053 | $34,352,684 | $3,755,707 | $30,596,977 | $15,882,110 | $14,714,867 |
| Alabama | 9 | 1,497,351 | 878,291 | 58.7 | 619,060 | ..... | 619,060 | 384,762 | 244,243 | 9,945 | 234,298 | 81,000 | 153,298 |
| Arkansas | 7 | 371,560 | 216,433 | 58.2 | 155,127 | ..... | 155,127 | 68,071 | 87,633 | 577 | 87,056 | ..... | 87,056 |
| California | 35 | 9,967,288 | 5,402,245 | 54.2 | 4,565,043 | 550 | 4,565,593 | 2,112,959 | 2,461,414 | 8,780 | 2,452,634 | 653,412 | 1,799,222 |
| Colorado | 7 | 2,227,286 | 1,300,606 | 58.4 | 926,680 | 480 | 927,160 | 536,005 | 432,428 | 41,273 | 391,155 | 180,000 | 211,155 |
| Connecticut | 21 | 4,284,089 | 2,773,608 | 64.7 | 1,510,481 | 71,686 | 1,582,167 | 1,128,819 | 461,604 | 7,756 | 453,848 | 231,062 | 222,786 |
| Delaware | 3 | 500,412 | 360,590 | 72.1 | 139,822 | 147 | 139,969 | 77,439 | 79,591 | 17,061 | 62,530 | 9,331 | 53,199 |
| Florida | 6 | 529,743 | 339,375 | 64.1 | 190,368 | ..... | 190,368 | 74,779 | 116,337 | 798 | 115,589 | 40,720 | 74,869 |
| Georgia | 10 | 2,375,224 | 1,232,320 | 51.9 | 1,142,904 | ..... | 1,142,904 | 755,207 | 387,697 | ..... | 387,697 | 33,952 | 353,745 |
| Illinois | 48 | 24,164,965 | 14,103,211 | 58.4 | 10,061,754 | 864,292 | 10,926,046 | 8,453,191 | 3,196,378 | 723,523 | 2,472,855 | 2,310,710 | 162,145 |
| Indiana | 26 | 3,813,076 | 2,219,791 | 58.2 | 1,593,285 | ..... | 1,593,285 | 1,201,297 | 438,115 | 46,127 | 391,988 | 33,974 | 358,014 |
| Iowa | 22 | 2,384,421 | 1,460,993 | 61.3 | 923,428 | 19,413 | 942,841 | 429,373 | 529,065 | 15,617 | 513,468 | 117,660 | 395,808 |
| Kansas | 11 | 370,481 | 257,248 | 69.4 | 113,233 | ..... | 113,233 | 64,451 | 48,839 | 57 | 48,782 | 4,000 | 44,782 |
| Kentucky | 12 | 2,932,901 | 1,560,270 | 53.2 | 1,372,631 | 899 | 1,373,530 | 777,433 | 602,551 | 6,454 | 596,097 | 371,000 | 225,097 |
| Louisiana | 8 | 2,910,244 | 1,758,989 | 60.4 | 1,151,255 | ..... | 1,151,255 | 690,380 | 463,313 | 2,438 | 460,875 | 362,198 | 98,677 |
| Maine | 19 | 1,542,508 | 1,127,660 | 73.1 | 414,848 | 29,054 | 443,902 | 337,050 | 148,961 | 42,109 | 106,852 | 67,829 | 39,023 |
| Maryland | 10 | 4,898,627 | 2,312,323 | 47.2 | 2,586,304 | ..... | 2,586,304 | 2,555,715 | 55,690 | 25,101 | 30,589 | 4,000 | 26,589 |
| Massachusetts | 74 | 23,617,570 | 16,403,667 | 69.5 | 7,213,903 | 15,840 | 7,229,743 | 5,108,619 | 2,301,508 | 180,384 | 2,121,124 | 1,910,060 | 211,064 |
| Michigan | 24 | 6,494,691 | 3,655,328 | 56.3 | 2,839,363 | 26,482 | 2,865,845 | 1,788,797 | 1,145,719 | 68,671 | 1,077,048 | 612,000 | 465,048 |
| Minnesota | 5 | 3,727,648 | 1,719,687 | 46.1 | 2,007,961 | ..... | 2,007,961 | 1,027,121 | 980,840 | ..... | 980,840 | 870,400 | 110,440 |
| Mississippi | 5 | 258,654 | 192,056 | 74.3 | 66,598 | ..... | 66,598 | 38,684 | 28,764 | 850 | 27,914 | ..... | 27,914 |
| Missouri | 16 | 10,691,220 | 6,071,971 | 56.8 | 4,619,249 | 43,472 | 4,662,721 | 4,635,401 | 459,982 | 432,662 | 27,320 | 313,337 | [2]286,017 |
| Montana | 5 | 492,023 | 365,073 | 74.2 | 126,950 | ..... | 126,950 | 74,633 | 66,196 | 13,879 | 52,317 | ..... | 52,317 |
| Nebraska | 4 | 1,148,994 | 655,729 | 57.1 | 493,265 | ..... | 493,265 | 150,297 | 343,949 | 981 | 342,968 | 230,800 | 112,168 |
| New Hampshire | 7 | 604,131 | 478,849 | 79.3 | 125,282 | ..... | 125,282 | 83,786 | 45,225 | 3,729 | 41,496 | 8,250 | 33,246 |
| New Jersey | 25 | 8,137,477 | 4,324,112 | 53.1 | 3,813,365 | 39,446 | 3,852,811 | 3,625,740 | 385,232 | 158,161 | 227,071 | 78,420 | 148,651 |
| New York | 96 | 59,315,606 | 33,677,724 | 56.8 | 25,637,882 | 1,566,174 | 27,204,056 | 19,552,965 | 8,391,716 | 740,615 | 7,651,101 | 3,133,655 | 4,517,446 |
| North Carolina | 7 | 437,259 | 322,344 | 73.7 | 114,915 | 5,208 | 120,123 | 98,993 | 47,071 | 25,941 | 21,130 | ..... | 21,130 |
| Ohio | 62 | 16,587,693 | 9,132,480 | 55.1 | 7,455,213 | 12,158 | 7,467,371 | 4,137,866 | 3,467,102 | 137,597 | 3,329,505 | 1,644,598 | 1,684,907 |
| Oregon | 6 | 1,042,895 | 653,912 | 62.7 | 388,983 | ..... | 388,983 | 146,519 | 243,721 | 1,257 | 242,464 | 54,048 | 188,416 |
| Pennsylvania | 98 | 30,319,211 | 15,624,813 | 51.5 | 14,694,398 | 38,516 | 14,732,914 | 12,868,286 | 2,497,069 | 632,441 | 1,864,628 | 621,811 | 1,242,817 |
| Rhode Island | 7 | 2,964,260 | 1,892,477 | 63.8 | 1,071,783 | ..... | 1,071,783 | 351,767 | 912,477 | 192,461 | 720,016 | 760,000 | [2]39,984 |
| South Carolina | 7 | 597,577 | 398,662 | 66.7 | 198,915 | 56,159 | 255,074 | 203,196 | 60,318 | 8,440 | 51,878 | 720 | 51,158 |
| Tennessee | 8 | 1,866,835 | 1,079,237 | 57.8 | 787,598 | ..... | 787,598 | 595,356 | 222,214 | 29,972 | 192,242 | ..... | 192,242 |
| Texas | 17 | 1,547,846 | 993,600 | 64.2 | 554,246 | ..... | 554,246 | 199,483 | 360,335 | 5,572 | 354,763 | 22,600 | 332,163 |
| Utah | 3 | 561,328 | 356,879 | 63.6 | 204,449 | 25,283 | 229,732 | 172,424 | 57,308 | ..... | 57,308 | 3,000 | 54,308 |
| Vermont | 9 | 249,228 | 201,179 | 80.7 | 48,049 | ..... | 48,049 | 45,089 | 20,704 | 17,744 | 2,960 | 8,750 | [2]5,790 |
| Virginia | 16 | 1,553,478 | 1,009,356 | 65.0 | 544,122 | 113,544 | 657,666 | 547,730 | 151,899 | 41,963 | 109,936 | 33,395 | 76,541 |
| Washington | 8 | 2,542,906 | 1,576,018 | 62.0 | 966,888 | ..... | 966,888 | 463,101 | 504,784 | 997 | 503,787 | 150,028 | 353,759 |
| West Virginia | 8 | 1,102,171 | 652,862 | 59.2 | 449,309 | ..... | 449,309 | 265,842 | 183,467 | ..... | 183,467 | 22,000 | 161,467 |
| Wisconsin | 17 | 3,902,059 | 1,995,024 | 51.1 | 1,907,035 | 21,825 | 1,928,860 | 1,081,160 | 847,700 | ..... | 847,700 | 300,563 | 547,137 |
| All other states and territories[3] | 11 | 3,021,063 | 1,575,605 | 52.2 | 1,445,458 | ..... | 1,445,458 | 685,777 | 873,455 | 113,774 | 759,681 | 602,827 | 156,854 |
| Hawaii and Porto Rico | 5 | 515,913 | 330,350 | 64.0 | 185,563 | ..... | 185,563 | 106,015 | 99,943 | 20,395 | 79,548 | 19,500 | 60,048 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.
[2] Deficit.
[3] Includes states and territories having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico, 1.

TABLE 38.—ANALYSIS OF DEDUCTIONS FROM INCOME (TAXES AND FIXED CHARGES) OF OPERATING COMPANIES, BY STATES AND TERRITORIES: 1902.[1]

| STATE OR TERRITORY. | Number of companies. | Aggregate. | TAXES. | | | | | INTEREST. | | | | Rent of leased lines and terminals. | Miscellaneous. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | Real and personal property. | Capital stock. | Earnings. | Miscellaneous. | Total. | Funded debt. | Real estate mortgages. | Floating debt. | | |
| United States.. | 799 | $77,595,053 | $13,078,899 | $5,835,542 | $2,931,252 | $2,719,287 | $1,592,818 | $38,085,911 | $35,223,284 | $93,078 | $2,769,549 | $25,518,225 | $912,018 |
| Alabama | 9 | 384,762 | 37,047 | 32,940 | ..... | 669 | 3,438 | 347,330 | 254,653 | ..... | 92,677 | ..... | 385 |
| Arkansas | 7 | 68,071 | 7,213 | 6,229 | ..... | 895 | 89 | 60,858 | 50,850 | ..... | 10,008 | ..... | ..... |
| California | 35 | 2,112,959 | 495,179 | 471,136 | ..... | 21,448 | 2,595 | 1,617,550 | 1,579,043 | ..... | 38,507 | ..... | 230 |
| Colorado | 7 | 536,006 | 78,264 | 78,264 | ..... | ..... | ..... | 454,479 | 441,645 | ..... | 12,834 | 3,262 | ..... |
| Connecticut | 21 | 1,128,319 | 243,393 | 4,352 | 227,562 | 11,479 | ..... | 757,580 | 732,108 | ..... | 25,472 | 108,046 | 19,300 |
| Delaware | 3 | 77,439 | 13,973 | 11,976 | ..... | ..... | 1,997 | 63,466 | 39,000 | 2,250 | 22,216 | ..... | ..... |
| Florida | 6 | 74,779 | 12,439 | 11,714 | ..... | ..... | 725 | 62,340 | 62,220 | ..... | 120 | ..... | ..... |
| Georgia | 10 | 755,207 | 110,846 | 108,579 | ..... | ..... | 2,267 | 644,361 | 642,712 | ..... | 1,649 | ..... | ..... |
| Illinois | 48 | 8,453,191 | 1,488,359 | 740,989 | 558,794 | ..... | 188,576 | 3,037,880 | 2,786,563 | 11,530 | 239,737 | 3,875,007 | 51,995 |
| Indiana | 26 | 1,201,297 | 185,014 | 151,609 | ..... | ..... | 33,405 | 984,391 | 952,219 | ..... | 32,172 | ..... | 31,892 |
| Iowa | 22 | 429,378 | 54,115 | 41,390 | 12,000 | ..... | 725 | 353,118 | 344,839 | ..... | 8,279 | ..... | 22,140 |
| Kansas | 11 | 64,451 | 8,401 | 7,326 | ..... | ..... | 1,075 | 56,050 | 55,500 | ..... | 550 | ..... | ..... |
| Kentucky | 12 | 777,433 | 177,775 | 52,843 | 124,174 | ..... | 758 | 598,594 | 591,672 | ..... | 6,922 | ..... | 1,064 |
| Louisiana | 8 | 690,380 | 200,156 | 179,549 | ..... | 20,607 | ..... | 483,594 | 476,530 | 400 | 6,664 | ..... | 6,630 |
| Maine | 19 | 337,050 | 29,704 | 16,748 | 50 | 12,522 | 384 | 301,772 | 266,969 | 667 | 34,136 | 4,000 | 1,574 |
| Maryland | 10 | 2,555,715 | 402,223 | 82,605 | 196 | 308,117 | 11,305 | 2,151,517 | 2,138,492 | ..... | 13,025 | 1,975 | ..... |
| Massachusetts | 74 | 5,108,619 | 1,609,496 | 437,893 | 854,402 | 317,055 | 146 | 1,524,248 | 1,071,242 | 712 | 452,294 | 1,967,540 | 7,335 |
| Michigan | 24 | 1,788,797 | 228,538 | 194,559 | ..... | 30,823 | 3,156 | 1,547,772 | 1,501,111 | ..... | 46,661 | ..... | 12,487 |
| Minnesota | 5 | 1,027,121 | 131,128 | 128,518 | ..... | 2,610 | ..... | 870,038 | 864,422 | ..... | 5,616 | 24,064 | 1,891 |
| Mississippi | 5 | 38,684 | 4,501 | 4,176 | ..... | ..... | 325 | 34,183 | 32,175 | ..... | 2,008 | ..... | ..... |
| Missouri | 16 | 4,635,401 | 646,682 | 523,127 | ..... | 22,528 | 101,027 | 1,756,840 | 1,439,798 | 1,677 | 315,365 | 2,230,164 | 1,715 |
| Montana | 5 | 74,633 | 13,975 | 11,075 | 200 | 1,532 | 1,168 | 60,658 | 58,375 | ..... | 2,283 | ..... | ..... |
| Nebraska | 4 | 150,297 | 28,252 | 28,252 | ..... | ..... | ..... | 122,045 | 119,750 | ..... | 2,295 | ..... | ..... |
| New Hampshire | 7 | 83,786 | 7,822 | 6,151 | 1,671 | ..... | ..... | 47,390 | 39,550 | ..... | 7,840 | 28,574 | ..... |
| New Jersey | 25 | 3,625,740 | 431,912 | 221,200 | 1,616 | 159,561 | 49,535 | 1,573,411 | 1,476,383 | 10,114 | 86,914 | 1,586,217 | 34,200 |
| New York | 96 | 19,552,955 | 3,428,461 | 1,450,203 | 251,726 | 975,753 | 750,779 | 10,333,127 | 9,528,743 | 30,746 | 773,638 | 5,719,589 | 71,778 |
| North Carolina | 7 | 98,993 | 10,791 | 10,791 | ..... | ..... | ..... | 87,219 | 80,310 | ..... | 6,909 | ..... | 983 |
| Ohio | 62 | 4,137,866 | 601,142 | 313,845 | 1,569 | 233,441 | 52,287 | 2,457,584 | 2,295,268 | 3,280 | 159,036 | 1,066,636 | 12,504 |
| Oregon | 6 | 146,519 | 17,622 | 13,636 | ..... | ..... | 3,986 | 128,897 | 128,719 | ..... | 178 | ..... | ..... |
| Pennsylvania | 98 | 12,868,286 | 1,576,476 | 102,673 | 896,619 | 250,620 | 326,564 | 2,056,166 | 1,870,540 | 18,804 | 166,822 | 8,902,431 | 333,213 |
| Rhode Island | 7 | 351,767 | 140,814 | 36,777 | ..... | 103,993 | 44 | 210,953 | 205,360 | ..... | 5,593 | ..... | ..... |
| South Carolina | 7 | 203,196 | 21,109 | 21,109 | ..... | ..... | ..... | 180,392 | 161,259 | ..... | 19,133 | 720 | 975 |
| Tennessee | 8 | 595,356 | 113,573 | 107,377 | ..... | ..... | 6,196 | 478,473 | 441,222 | ..... | 37,251 | ..... | 3,310 |
| Texas | 17 | 199,483 | 36,919 | 36,525 | ..... | ..... | 394 | 162,564 | 152,912 | ..... | 9,652 | ..... | ..... |
| Utah | 3 | 172,424 | 16,702 | 16,552 | ..... | ..... | 150 | 155,613 | 140,000 | ..... | 15,613 | ..... | 109 |
| Vermont | 9 | 45,089 | 4,427 | 644 | 673 | 3,075 | 35 | 40,662 | 36,721 | ..... | 3,941 | ..... | ..... |
| Virginia | 16 | 547,730 | 46,845 | 28,989 | ..... | 808 | 17,048 | 490,484 | 467,662 | 3,600 | 19,222 | ..... | 10,401 |
| Washington | 8 | 463,101 | 78,239 | 61,987 | ..... | 16,252 | ..... | 384,862 | 374,163 | ..... | 10,699 | ..... | ..... |
| West Virginia | 8 | 265,842 | 28,030 | 27,483 | ..... | 547 | ..... | 237,812 | 230,959 | ..... | 6,853 | ..... | ..... |
| Wisconsin | 17 | 1,081,160 | 150,059 | 3,952 | ..... | 146,107 | ..... | 646,194 | 624,205 | 6,634 | 15,355 | ..... | 284,907 |
| All other states and territories[2] | 11 | 685,777 | 161,283 | 49,799 | ..... | 78,845 | 32,639 | 523,494 | 467,420 | 2,664 | 53,410 | ..... | 1,000 |
| Hawaii and Porto Rico | 5 | 106,015 | 10,987 | 10,305 | 158 | 350 | 174 | 68,618 | 66,305 | ..... | 2,313 | ..... | 26,410 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

[2] Includes states and territories having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico, 1.

The income account of nonoperating lessor companies, by states is shown in Table 39, and the combined income account for operating and lessor companies considered as one system, by states, in Table 40.

TABLE 39.—INCOME ACCOUNT FOR NONOPERATING LESSOR COMPANIES, BY STATES: 1902.[1]

| STATE. | Number of companies. | INCOME. | | | EXPENDITURES. | | | | | | Net income of companies reporting net income. | Deficit of companies reporting deficit. | Net income for state. | Dividends. | Surplus. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Rental. | Miscellaneous. | Aggregate. | Taxes. | Interest. | | | Maintenance of organization, and miscellaneous. | | | | | |
| | | | | | | | Total. | On funded debt. | On floating debt and real estate mortgages. | | | | | | |
| United States. | 158 | $26,138,899 | $26,116,884 | $22,015 | $8,779,294 | $287,436 | $8,376,559 | $8,355,677 | $20,882 | $115,299 | $17,359,837 | $232 | $17,359,605 | $17,157,061 | $202,544 |
| Connecticut | 4 | 113,546 | 113,546 | ..... | 77,363 | 18,052 | 43,704 | 36,500 | 7,204 | 15,607 | 36,183 | ..... | 36,183 | 44,000 | [2]7,817 |
| Illinois | 8 | 3,758,762 | 3,758,762 | ..... | 1,323,507 | ..... | 1,323,507 | 1,323,507 | ..... | ..... | 2,435,255 | ..... | 2,435,255 | 2,435,255 | ..... |
| Massachusetts | 18 | 1,986,774 | 1,986,774 | ..... | 705,967 | 845 | 695,678 | 682,427 | 13,251 | 9,444 | 1,280,989 | 182 | 1,280,807 | 1,272,395 | 8,412 |
| New Hampshire | 6 | 80,875 | 80,875 | ..... | 37,125 | ..... | 37,125 | 37,125 | ..... | ..... | 43,750 | ..... | 43,750 | ..... | 43,750 |
| New Jersey | 4 | 1,586,217 | 1,586,217 | ..... | 1,165,747 | ..... | 1,160,560 | 1,160,560 | ..... | 5,187 | 420,470 | ..... | 420,470 | 369,220 | 51,250 |
| New York | 23 | 5,703,608 | 5,697,399 | 6,209 | 1,937,801 | ..... | 1,908,060 | 1,908,060 | ..... | 29,741 | 3,765,807 | ..... | 3,765,807 | 3,747,209 | 18,598 |
| Ohio | 4 | 1,059,814 | 1,059,814 | ..... | 55,425 | ..... | 55,425 | 55,425 | ..... | ..... | 1,004,389 | ..... | 1,004,389 | 988,956 | 15,433 |
| Pennsylvania | 86 | 9,608,918 | 9,593,112 | 15,806 | 1,821,203 | 268,404 | 1,497,969 | 1,497,542 | 427 | 54,830 | 7,787,765 | 50 | 7,787,715 | 7,529,069 | 258,646 |
| All other states[3] | 5 | 2,240,385 | 2,240,385 | ..... | 1,655,156 | 135 | 1,654,531 | 1,654,531 | ..... | 490 | 585,229 | ..... | 585,229 | 770,957 | [2]185,728 |

[1] Exclusive of reports for 12 companies which failed to furnish this information.
[2] Deficit.
[3] Includes states having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Colorado, 1; Maine, 1; Maryland, 2; Missouri, 1.

TABLE 40.—CONDENSED INCOME ACCOUNT FOR OPERATING AND LESSOR COMPANIES COMBINED, BY STATES: 1902.[1]

| STATE. | Number of companies. | Operating earnings. | Operating expenses. | Net earnings from operation. | Income from all other sources. | Gross income less operating expenses. | DEDUCTIONS FROM INCOME (TAXES AND FIXED CHARGES). | | | | | Net income. | Dividends. | Surplus. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Aggregate. | Taxes. | Interest. | | | | | |
| | | | | | | | | | Total. | On funded debt. | On other debt. | Miscellaneous. | | | |
| Connecticut | 25 | $4,284,089 | $2,773,608 | $1,510,481 | $71,686 | $1,582,167 | $1,097,636 | $261,445 | $801,284 | $768,608 | $32,676 | $34,907 | $484,531 | $275,062 | $209,469 |
| Illinois | 56 | 24,164,965 | 14,103,211 | 10,061,754 | 864,292 | 10,926,046 | 5,901,691 | 1,488,359 | 4,361,337 | 4,110,070 | 251,267 | 51,995 | 5,024,355 | 4,745,965 | 278,390 |
| Massachusetts | 92 | 23,617,570 | 16,403,667 | 7,213,903 | 15,840 | 7,229,743 | 3,847,046 | 1,610,341 | 2,219,926 | 1,753,669 | 466,257 | 16,779 | 3,382,697 | 3,182,456 | 200,242 |
| New Hampshire | 13 | 604,131 | 478,849 | 125,282 | ..... | 125,282 | 92,337 | 7,822 | 84,515 | 76,675 | 7,840 | ..... | 32,945 | 8,250 | 24,695 |
| New Jersey | 29 | 8,137,477 | 4,324,112 | 3,813,365 | 39,446 | 3,852,811 | 3,205,270 | 431,912 | 2,733,971 | 2,636,943 | 97,028 | 39,387 | 647,541 | 447,640 | 199,901 |
| New York | 119 | 59,315,606 | 33,677,724 | 25,637,882 | 1,572,383 | 27,210,265 | 15,771,167 | 3,428,461 | 12,241,187 | 11,436,803 | 804,384 | 101,519 | 11,439,098 | 6,880,864 | 4,558,234 |
| Ohio | 66 | 16,587,693 | 9,132,480 | 7,455,213 | 12,158 | 7,467,371 | 3,126,655 | 601,142 | 2,513,009 | 2,350,693 | 162,316 | 12,504 | 4,340,716 | 2,633,554 | 1,707,162 |
| Pennsylvania | 184 | 30,319,211 | 15,624,813 | 14,694,398 | 54,322 | 14,748,720 | 5,787,108 | 1,844,880 | 3,554,135 | 3,368,082 | 186,053 | 388,093 | 8,961,612 | 8,150,880 | 810,732 |
| All other states[3] | 57 | 19,359,641 | 10,812,560 | 8,547,081 | 73,006 | 8,620,087 | 7,479,926 | 1,157,008 | 6,319,139 | 5,941,435 | 377,704 | 3,779 | 1,140,161 | 1,336,123 | [2]196,962 |

[1] Exclusive of reports for 12 lessor companies which failed to furnish this information.
[2] Deficit.
[3] Includes states having less than 3 lessor companies, in order that the operations of individual companies may not be disclosed. The companies are distributed as follows: Colorado, 1; Maine, 1; Maryland, 2; Missouri, 1.

Wide differences appear among the states in the proportions which the various items of the income account bear to one another.

From Table 37 it will be seen that the operating earnings of the companies in the state of New York—$59,315,606—constitute no less than 24 per cent of the total for the United States, which amounts to $247,553,999. The operating earnings of the companies in Pennsylvania are somewhat more than one-half as great as those of the New York companies. Illinois is third, with about one-tenth of the street railway earnings of the country, while Massachusetts, which shows a remarkable development of interurban traffic, follows close after Illinois. Of the total net earnings from operation—$105,241,402—New York companies show $25,637,882, or 24.4 per cent. The fact that the street railway companies of New York and Illinois together have more than five-sixths of the "income from other sources" than operation is explained by the large extent to which companies in Chicago and New York city hold the securities of other companies.

*Taxes in the several states.*—The statistics for states showing the proportion which the contributions of street railway companies to the public treasury bear to their gross income and to their income less operating expenses throw some, though on the whole but little, light upon the policy prevailing under state laws and local ordinances concerning the taxation of this business and the requirement of compensation for special privileges. Quite as important a cause of the wide variations that appear among the states in this respect is found in the differences in the expense of government and in the general rate and methods of taxation in the communities where the railways are located. The pro-

portion of taxes to gross income, and even to gross income less operating expenses, is in general lowest in those states where the greatest proportion of railways are in small towns; notably in various states of the West and South, which are lacking in large urban communities. In a number of these states the taxes paid were less than 2.5 per cent of the gross income of the companies.

Table 41 shows the ratio of taxes to gross income, and to income less operating expenses, in the more important states. It will be seen that Michigan, Ohio, and Indiana are the only states in the table in which the taxes were less than 5 per cent of the gross income. The lower ratio of taxes in these states is probably due in part to the large proportion of interurban railways, the taxation upon which is as yet less heavy than that upon street railways in cities.

TABLE 41.—*Percentage of taxes to income, for street and interurban railways, in selected states: 1902.*

| STATE. | PERCENTAGE OF TAXES TO— | |
|---|---|---|
| | Gross income. | Gross income less operating expenses. |
| California | 5.0 | 10.8 |
| Connecticut | 6.0 | 16.5 |
| Illinois | 5.9 | 13.6 |
| Indiana | 4.9 | 11.6 |
| Kentucky | 6.1 | 12.9 |
| Louisiana | 6.9 | 17.4 |
| Maryland | 8.2 | 15.6 |
| Massachusetts | 6.8 | 22.3 |
| Michigan | 3.5 | 8.0 |
| Missouri | 6.0 | 13.9 |
| New Jersey | 5.3 | 11.2 |
| New York | 5.6 | 12.6 |
| Ohio | 3.6 | 8.1 |
| Pennsylvania | 6.1 | 12.5 |
| Tennessee | 6.1 | 14.4 |

Payments to public authorities are heavier in Maryland than in any other state, being 8.2 per cent of gross income and 15.6 per cent of gross income less operating expenses. This fact is due to the policy of the city of Baltimore in requiring a large franchise payment annually from her railways. Louisiana and Massachusetts come next with taxes amounting to nearly 7 per cent of gross income. The high proportion in Massachusetts is not attributable to the requirement of special franchise payments to local governments, but rather to the methods of assessing corporate property in general in that commonwealth, and to the commutation of the ordinary requirements regarding maintenance and care of the street surface into cash payments to the local authorities.

In Chapter IX will be found a digest of information regarding the special payments for franchise privileges required from street railways in various cities and towns.

*Rentals of leased lines, by states.*—The widest difference appears among the states as regards the amount of rental paid for leased lines. In only 12 states are there any lessor companies. The rentals paid in 3 states alone, Pennsylvania, Illinois, and New York, amount to about three-fourths of the total rentals for the United States. The rentals paid by operating companies in Pennsylvania amount to no less than $8,902,431, or 29 per cent of the gross income of the companies. The rentals paid in Pennsylvania are equal to nearly three times the amount paid by all the operating companies of that state as interest and dividends on their own securities. In Philadelphia almost all the railway trackage has come under the control of a single operating company, which itself owns no track, but which holds and operates the system under a complicated series of leases and subleases. Five-sixths of the entire net operating earnings of this company go to pay the rentals on the bonds and stocks of its 38 lessor companies. A similar condition of affairs exists in Pittsburg. A large proportion of the surface railway trackage of New York city is likewise controlled under lease, and the rentals paid by operating companies in the state as a whole are equal to nearly one-tenth of their gross income. In Illinois rentals are equal to 15 per cent of the gross income of the railway companies. The Union Traction Company of Chicago, the most important company in that city, holds its trackage altogether under lease. The most important railway system of St. Louis is likewise leased by one company to another, and the rental of leased lines in Missouri is equal to more than one-fifth of the gross income of the street railway companies of the state.

Detailed comment on the figures of interest, net income, dividends, and surplus in the several states would be superfluous. Attention may, however, be called again to the fact that profits in the street railway business do not by any means necessarily depend upon a high proportionate net income. Thus the street railway business in a state in which the proportion of net income is relatively small may yet be highly profitable business, even as disclosed in the income account. Payments to capital in the form of interest and rentals, which are deducted when computing net income, are quite as real a return as those which take the form of dividends. The combined income account for operating and lessor companies, Table 40, gives a very different view of the profitableness of street railway operation in some of the states from that which appears in the income account of operating railways alone.

## II.

### ANALYSIS OF OPERATING EARNINGS.

*Operating earnings of companies, classified according to power.*—Table 42 shows, for all companies and for the various groups distinguished according to the character of power used, the amount of operating earnings from the different sources.

TABLE 42.—OPERATING EARNINGS OF COMPANIES, CLASSIFIED ACCORDING TO POWER: 1902.[1]

| | Total. | ELECTRIC, SURFACE. | | | Animal. | Steam and electric elevated. | Cable, surface, and inclined planes. | Steam, surface. |
|---|---|---|---|---|---|---|---|---|
| | | Without commercial lighting. | With commercial lighting. | Part time. | | | | |
| Number of companies | 799 | 556 | 112 | 57 | 52 | 5 | 14 | 8 |
| Operating earnings | $247,553,999 | $204,076,037 | $22,088,656 | $2,475,365 | $1,475,901 | $16,397,867 | $1,024,323 | $15,850 |
| From passengers | 233,821,548 | 197,989,040 | 15,084,584 | 2,344,571 | 1,449,228 | 16,001,186 | 945,160 | 7,779 |
| From chartered cars | 303,608 | 261,588 | 38,949 | 3,006 | 66 | | | |
| From freight | 1,038,097 | 780,444 | 182,076 | 21,788 | 10,242 | | 35,854 | 7,693 |
| From mail | 432,080 | 390,256 | 20,623 | 2,081 | 1,005 | 17,948 | 17 | 150 |
| From express | 401,672 | 377,439 | 17,560 | 5,419 | 280 | | 824 | 150 |
| From sale of electric current for light and power | 7,703,574 | 1,196,025 | 6,445,542 | 62,007 | | | | |
| From miscellaneous sources | 3,853,420 | 3,061,245 | 299,322 | 36,494 | 15,080 | 378,733 | 42,468 | 78 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

Table 43 shows the percentage which each item bears to the total earnings of the group.

TABLE 43.—PERCENTAGE DISTRIBUTION, BY SOURCES, OF OPERATING EARNINGS OF COMPANIES, CLASSIFIED ACCORDING TO POWER: 1902.

| | Total. | ELECTRIC, SURFACE. | | | Animal. | Steam and electric elevated. | Cable, surface, and inclined planes. | Steam, surface. |
|---|---|---|---|---|---|---|---|---|
| | | Without commercial lighting. | With commercial lighting. | Part time. | | | | |
| Operating earnings | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| From passengers | 94.4 | 97.0 | 68.3 | 94.7 | 98.2 | 97.6 | 92.3 | 49.1 |
| From chartered cars | 0.1 | 0.1 | 0.2 | 0.1 | [1] | | | |
| From freight | 0.4 | 0.4 | 0.8 | 0.9 | 0.7 | | 3.5 | 48.6 |
| From mail | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | [1] | 0.9 |
| From express | 0.2 | 0.2 | 0.1 | 0.2 | [1] | | 0.1 | 0.9 |
| From sale of electric current for light and power | 3.1 | 0.6 | 29.2 | 2.5 | | | | |
| From miscellaneous sources | 1.6 | 1.5 | 1.3 | 1.5 | 1.0 | 2.3 | 4.1 | 0.5 |

[1] Less than one-tenth of 1 per cent.

It will be seen that including the small amount from chartered cars 94.5 per cent of the earnings of all companies were derived from passenger traffic. Of the other sources of earnings the sale of electric current for light and power was the most important. Of the receipts from this last source 83.7 per cent were earned by that group of electric railways which operate fairly distinct and important light and power plants in addition to their railway business. They derived 29.2 per cent of their operating earnings from the sale of light and power. It is scarcely possible to draw a sharp distinction between companies which operate commercial lighting plants and those which do not. The small sales of current reported by companies which are not regarded by the Bureau of the Census as operating separate light and power plants are, in considerable measure, made to other railway companies or to electric light companies, which take the current directly at the dynamo and distribute it.

Railway companies differ to some extent in regard to the distinction which they make between freight and express business, and the amounts of these items, therefore, can not be considered as based upon exact definitions. Elevated railways reported only a small amount of income from mail service and none from freight and express. The freight earnings of the group of cable railways are confined to the inclined plane roads, which derive about one-sixth of their revenue from this source.

The item of miscellaneous earnings covers receipts from a considerable variety of sources. In the case of some companies it includes a certain amount of revenue which, strictly speaking, should be treated as miscellaneous income rather than as earnings, since it is derived from sources not directly connected with the railway or with the accompanying light and power business, but which was not distinguished in the returns from earnings proper. The most important source of miscellaneous earnings was street car advertising, and, particularly in the case of elevated railways, advertising in stations. This revenue belongs properly enough to earnings. Some companies derive a small amount of earnings from parks and other pleasure resorts which they operate. In the majority of instances, however, these establishments are run at a loss, so far as their direct operations are concerned, the company making its profit from the increase in traffic. The sums received by certain railway companies for permitting the cars of other companies to run over their tracks are likewise properly included under the head of miscellaneous earnings.

*Operating earnings of companies, classified according to population.*—Tables 44 and 45 show the amount and percentage distribution of the various items of operating earnings of all street and interurban railway companies, classified according to the population of the urban centers served, with the further distinction of the two classes of interurban railways.

TABLE 44.—OPERATING EARNINGS, BY SOURCES, OF COMPANIES, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 799 | 65 | 47 | 83 | 312 | 53 | 239 |
| Operating earnings | $247,553,999 | $120,837,097 | $51,008,983 | $22,728,795 | $11,879,327 | $10,161,736 | $30,938,151 |
| From passengers | 233,821,548 | 118,195,786 | 49,014,651 | 19,928,711 | 9,241,431 | 8,994,849 | 28,446,120 |
| From chartered cars | 303,608 | 70,986 | 65,305 | 23,656 | 12,239 | 37,987 | 93,435 |
| From freight | 1,038,097 | 34,336 | 141,574 | 158,499 | 81,323 | 300,685 | 321,680 |
| From mail | 432,080 | 217,777 | 76,081 | 23,251 | 18,335 | 29,126 | 67,510 |
| From express | 401,672 | 53,193 | 7,191 | 4,946 | 12,023 | 171,111 | 153,208 |
| From sale of electric current for light and power | 7,703,574 | 425,925 | 1,011,031 | 2,236,787 | 2,259,694 | 397,217 | 1,372,920 |
| From miscellaneous sources | 3,853,420 | 1,839,004 | 693,150 | 352,945 | 254,282 | 230,761 | 483,278 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

TABLE 45.—PERCENTAGE DISTRIBUTION, BY SOURCES, OF OPERATING EARNINGS OF COMPANIES, CLASSIFIED ACCORDING TO POPULATION: 1902.

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Operating earnings | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| From passengers | 94.4 | 97.8 | 96.1 | 87.7 | 77.8 | 88.5 | 92.0 |
| From chartered cars | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.3 |
| From freight | 0.4 | (1) | 0.3 | 0.7 | 0.7 | 2.9 | 1.0 |
| From mail | 0.2 | 0.2 | 0.1 | 0.1 | 0.2 | 0.3 | 0.2 |
| From express | 0.2 | (1) | (1) | (1) | 0.1 | 1.7 | 0.5 |
| From sale of electric current for light and power | 3.1 | 0.4 | 2.0 | 9.8 | 19.0 | 3.9 | 4.4 |
| From miscellaneous sources | 1.6 | 1.5 | 1.4 | 1.6 | 2.1 | 2.3 | 1.6 |

[1] Less than one-tenth of 1 per cent.

The corresponding statistics for full-time electric surface railways not furnishing commercial lighting are presented in Tables 46 and 47.

TABLE 46.—OPERATING EARNINGS, BY SOURCES, OF FULL-TIME ELECTRIC SURFACE RAILWAY COMPANIES, WITHOUT COMMERCIAL LIGHTING, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 556 | 47 | 38 | 66 | 165 | 40 | 200 |
| Operating earnings | $204,076,037 | $102,896,131 | $45,589,368 | $15,356,895 | $6,377,469 | $7,640,642 | $26,215,532 |
| From passengers | 197,989,040 | 100,708,508 | 44,544,520 | 14,801,254 | 6,034,681 | 6,968,044 | 24,932,033 |
| From chartered cars | 261,588 | 70,986 | 57,210 | 13,466 | 7,571 | 34,044 | 78,311 |
| From freight | 780,444 | 10,904 | 128,234 | 88,172 | 36,192 | 241,082 | 275,860 |
| From mail | 390,256 | 199,829 | 72,981 | 17,841 | 14,172 | 25,303 | 60,130 |
| From express | 377,439 | 52,369 | 7,191 | 3,584 | 10,006 | 160,604 | 143,685 |
| From sale of electric current for light and power | 1,196,025 | 425,925 | 148,374 | 151,407 | 138,156 | 17,173 | 314,990 |
| From miscellaneous sources | 3,081,245 | 1,427,610 | 630,858 | 281,171 | 136,691 | 194,392 | 410,523 |

[1] Exclusive of reports for 16 companies which failed to furnish this information.

TABLE 47.—PERCENTAGE DISTRIBUTION, BY SOURCES, OF OPERATING EARNINGS OF FULL-TIME ELECTRIC SURFACE RAILWAY COMPANIES, WITHOUT COMMERCIAL LIGHTING, CLASSIFIED ACCORDING TO POPULATION: 1902.

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Operating earnings | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| From passengers | 97.0 | 97.9 | 97.7 | 96.4 | 94.6 | 91.2 | 95.1 |
| From chartered cars | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.3 |
| From freight, mail, and express | 0.8 | 0.2 | 0.5 | 0.7 | 1.0 | 5.6 | 1.8 |
| From sale of electric current for light and power | 0.6 | 0.4 | 0.3 | 1.0 | 2.2 | 0.2 | 1.2 |
| From miscellaneous sources | 1.5 | 1.4 | 1.4 | 1.8 | 2.1 | 2.6 | 1.6 |

The proportion which passenger earnings bear to the total earnings depends primarily on the amount of income from light and power, and it is therefore quite different, in some of the population groups, when electric surface companies without lighting plants are considered alone, from that which appears for all classes of companies combined, including those selling light and power in a commercial way. For all companies the proportion of passenger earnings to total earnings is greatest in the centers of more than 500,000 population, and, decreasing with population, becomes smallest in those of less than 25,000 inhabitants.

The receipts from chartered cars in all classes of urban centers are exceedingly small. The item of earnings from chartered cars is of somewhat greater significance on interurban railways, constituting four-tenths of 1 per cent of the total earnings of fast, long interurban railways and three-tenths of 1 per cent of the earnings of other interurban lines. It is not uncommon for pleasure parties to avail themselves of the convenience and comfort of chartered interurban cars for long journeys into the country or for visits to neighboring towns and cities.

The earnings of urban street railways from freight, mail, and express service are insignificant as compared with their passenger earnings. The distinction between freight and express traffic as made by street and electric railways is not a very precise one, and these two items in the tables should therefore be considered jointly. The earnings from these two sources are relatively greater in small cities than in the larger cities. The freight and express business of the interurban railways of both classes is much more important than that of urban railways. The total revenue of fast, long interurban railways from freight, mail, and express traffic amounted to $500,922, or 4.9 per cent of the gross earnings of all interurban companies of this class.

There are striking differences among the various urban groups in regard to the proportion of earnings derived from the sale of electric light and power. If companies of all classes, including those furnishing commercial lighting, be considered together, it will be found that whereas only two-fifths of 1 per cent of the earnings of companies in urban centers of more than 500,000 inhabitants were derived from light and power, the corresponding proportion in cities under 25,000 inhabitants was 19 per cent. For reasons elsewhere suggested (page 13) it is much more common to find railway business combined with light and power business in small and medium-sized cities than in large ones. Several interurban railway companies of both classes also operated lighting plants and derived a considerable amount of earnings from them.

When attention is confined to those electric surface railway companies which are not regarded by the Bureau of the Census as doing a commercial lighting business, it appears that the earnings from the incidental sale of electric current were also greater among companies in urban centers of less than 100,000 inhabitants than among companies in the larger cities.

The various population groups do not show a wide divergence as regards the proportion which the earnings of railway companies from miscellaneous sources bear to the total earnings. On the face of the returns the proportion of receipts from such sources was distinctly greater in urban centers of less than 25,000 inhabitants than in the larger centers. This is probably attributable, at least in part, to the failure of companies in these towns to distinguish strictly between miscellaneous earnings, which are properly assignable to street railway operation, and miscellaneous income, which is derived from property entirely distinct from the street railway business. The miscellaneous receipts are made up of such a wide variety of items that it is impossible, in the absence of the exact figures for each item, to derive any significant comparisons from the totals for groups. One would, perhaps, expect the receipts from advertising to be comparatively larger in great cities than in those of smaller population, and this opinion seems to be confirmed by such incomplete data regarding the earnings from advertising as appear in the original schedules.

*Operating earnings, by states.*—Table 48 presents the sources of operating earnings, by states and territories.

The proportions of the earnings from different sources in a given state depend in considerable measure upon the size of the cities in which its street railway companies operate and upon the presence or absence of interurban railways. Thus the earnings from freight, mail, and express service combined are relatively much larger in Ohio and Michigan than elsewhere, because the interurban railways in those states have developed this class of traffic to a considerable degree. The companies of Maryland derived a greater proportion of their revenue from carrying mail than the companies of any other state, although this item was also considerable in Illinois, Missouri, and Massachusetts. Receipts from the sale of electric current for light and power constituted a larger proportion of total earnings in several of the Southern and Western states, where the total business of the companies is comparatively small, than in the leading Northern states. A considerable income was, however, derived from the sale of light and power by the street and interurban railways of Connecticut, Ohio, Illinois, Iowa, and Wisconsin.

TABLE 48.—ANALYSIS OF GROSS EARNINGS FROM OPERATION, BY STATES AND TERRITORIES: 1902.[1]

| STATE OR TERRITORY. | Number of companies. | Total. | FROM— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Passengers. | Chartered cars. | Freight. | Mail. | Express. | Sale of electric current for light or power. | Miscellaneous. |
| United States | 799 | $247,553,999 | $233,821,548 | $308,608 | $1,038,097 | $432,080 | $401,672 | $7,703,574 | $3,853,420 |
| Alabama | 9 | 1,497,351 | 1,135,266 | 2,211 | 34,494 | 1,415 | 1,362 | 318,660 | 3,943 |
| Arkansas | 7 | 371,560 | 322,805 | 114 | 26 | ..... | ..... | 45,630 | 2,985 |
| California | 35 | 9,967,288 | 9,464,723 | 3,637 | 47,625 | 20,116 | 3,576 | 279,216 | 148,395 |
| Colorado | 7 | 2,227,286 | 2,091,824 | 8,106 | ..... | 2,000 | ..... | 111,104 | 14,252 |
| Connecticut | 21 | 4,284,089 | 3,829,094 | 12,435 | 16,652 | 6,807 | 16,660 | 348,237 | 54,204 |
| Delaware | 3 | 500,412 | 476,589 | 494 | 2,270 | ..... | ..... | 5,112 | 15,997 |
| Florida | 6 | 529,743 | 411,533 | 667 | 2,486 | 515 | ..... | 110,363 | 4,179 |
| Georgia | 10 | 2,375,224 | 1,594,982 | 4,972 | 9,772 | 440 | 150 | 727,847 | 37,061 |
| Illinois | 48 | 24,164,965 | 23,270,828 | 12,615 | 23,165 | 42,596 | 10,148 | 519,958 | 285,655 |
| Indiana | 26 | 3,813,076 | 3,532,579 | 6,858 | 18,781 | 1,977 | 17,893 | 144,323 | 90,665 |
| Iowa | 22 | 2,384,421 | 1,959,965 | 954 | 17,548 | 5,299 | 9,132 | 296,730 | 94,793 |
| Kansas | 11 | 370,481 | 343,197 | 200 | ..... | 566 | ..... | 23,007 | 3,511 |
| Kentucky | 12 | 2,932,901 | 2,780,487 | 1,407 | 2,500 | 2,168 | 4,162 | 133,337 | 8,840 |
| Louisiana | 8 | 2,910,244 | 2,835,262 | 4,457 | ..... | 1,682 | ..... | 37,753 | 31,090 |
| Maine | 19 | 1,542,508 | 1,311,198 | 251 | 80,380 | 6,179 | 9,409 | 102,318 | 32,773 |
| Maryland | 10 | 4,898,627 | 4,748,425 | 520 | 15,343 | 33,372 | 11,169 | 10,843 | 78,955 |
| Massachusetts | 74 | 23,617,570 | 22,807,316 | 43,182 | 12,876 | 48,454 | 4,140 | 250,109 | 451,493 |
| Michigan | 24 | 6,494,691 | 6,014,842 | 20,313 | 47,904 | 11,143 | 153,224 | 195,428 | 51,837 |
| Minnesota | 5 | 3,727,648 | 3,650,483 | 4,138 | ..... | 4,335 | ..... | 49,680 | 19,012 |
| Mississippi | 5 | 258,654 | 154,597 | 113 | ..... | ..... | ..... | 103,236 | 708 |
| Missouri | 16 | 10,691,220 | 10,422,536 | 5,652 | 7,379 | 41,071 | 4,392 | 172,036 | 38,154 |
| Montana | 5 | 492,023 | 382,452 | ..... | 50,544 | 365 | 34 | 43,284 | 15,344 |
| Nebraska | 4 | 1,148,994 | 1,107,494 | 1,044 | ..... | 2,698 | ..... | 35,073 | 2,685 |
| New Hampshire | 7 | 604,131 | 579,546 | ..... | 1,182 | 4,050 | 120 | 10,625 | 8,608 |
| New Jersey | 25 | 8,137,477 | 7,989,544 | 21,585 | 5,364 | 4,822 | 96 | 15,459 | 100,607 |
| New York | 96 | 59,315,606 | 57,347,930 | 53,418 | 197,324 | 65,077 | 64,213 | 471,509 | 1,116,135 |
| North Carolina | 7 | 437,259 | 247,812 | 75 | 8,367 | ..... | 1,500 | 163,657 | 15,848 |
| Ohio | 62 | 16,587,698 | 15,293,916 | 37,450 | 211,842 | 35,171 | 57,679 | 602,619 | 349,016 |
| Oregon | 6 | 1,042,895 | 969,231 | 507 | 17,287 | 2,904 | 163 | 33,522 | 19,281 |
| Pennsylvania | 98 | 30,319,211 | 29,537,284 | 24,407 | 35,563 | 61,377 | 28,477 | 138,602 | 493,501 |
| Rhode Island | 7 | 2,964,260 | 2,874,255 | 1,963 | 43,835 | 1,769 | 536 | 25,687 | 16,215 |
| South Carolina | 7 | 597,577 | 401,553 | 61 | 16,579 | 1,504 | ..... | 171,562 | 6,318 |
| Tennessee | 8 | 1,866,835 | 1,759,680 | 68 | 1,239 | 4,836 | ..... | 86,901 | 14,111 |
| Texas | 17 | 1,547,846 | 1,501,188 | 2,250 | 3,000 | 555 | 719 | 20,859 | 19,275 |
| Utah | 3 | 561,328 | 547,875 | 1,197 | ..... | 800 | ..... | 1,571 | 9,885 |
| Vermont | 9 | 249,228 | 216,013 | ..... | 23,351 | 2,201 | 1,768 | ..... | 5,895 |
| Virginia | 16 | 1,553,478 | 1,103,732 | 2,036 | 12,791 | 1,617 | 368 | 387,031 | 45,903 |
| Washington | 8 | 2,542,906 | 1,513,156 | 3,233 | 63,501 | 1,883 | ..... | 641,800 | 19,333 |
| West Virginia | 8 | 1,102,171 | 958,805 | 100 | 6,160 | 755 | ..... | 126,117 | 10,234 |
| Wisconsin | 17 | 3,902,059 | 3,155,168 | 11,489 | ..... | 765 | 582 | 690,284 | 43,771 |
| All other states and territories[2] | 11 | 3,021,063 | 2,876,433 | 9,429 | 967 | 8,796 | ..... | 52,485 | 72,953 |
| Hawaii and Porto Rico | 5 | 515,913 | 485,258 | 301 | 25 | ..... | ..... | 26,454 | 3,875 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.
[2] Includes states and territories having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico, 1.

## III.

### ANALYSIS OF OPERATING EXPENSES.

*Detailed analysis, by states.*—Table 49 presents for the United States and for each state an analysis of the operating expenses of street railways under six main divisions and thirty-nine subdivisions. The classification of expenses is that adopted by the American Street Railway Accountants' Association. In the appendix to this report will be found a detailed list of the different items of expenditure which, according to the rules of that association, are to be included in each of the divisions and subdivisions. This classification applies less satisfactorily to animal power, elevated, and steam railways than to electric and cable railways, and less satisfactorily to electric railways having commercial lighting plants than to those without them. Nevertheless, electric railway companies without commercial lighting plants do such a large proportion of the total business for all classes of companies that the totals of the table, which include all operating companies, may be regarded as showing in a fairly accurate manner the distribution of expenses of this class of companies.

TABLE 49.—ANALYSIS OF OPERATING

| | STATE OR TERRITORY. | Number of companies. | Aggregate. | MAINTENANCE. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ways and structures. | | | | Equipment. | | | |
| | | | | Total. | Track and roadway. | Electric, cable, etc., lines. | Buildings and fixtures. | Total. | Steam plant. | Electric, cable, etc., plant. | Cars. |
| 1 | United States | 799 | $142,312,597 | $12,118,296 | $8,158,631 | $2,959,182 | $1,000,483 | $16,676,532 | $1,353,789 | $826,604 | $7,659,428 |
| 2 | Alabama | 9 | 878,291 | 71,473 | 57,864 | 11,218 | 2,391 | 114,402 | 4,828 | 5,845 | 60,243 |
| 3 | Arkansas | 7 | 216,433 | 18,959 | 16,214 | 1,589 | 1,156 | 19,405 | 3,432 | 249 | 9,873 |
| 4 | California | 35 | 5,402,245 | 530,602 | 292,041 | 219,005 | 19,556 | 621,653 | 49,956 | 86,183 | 291,809 |
| 5 | Colorado | 7 | 1,300,606 | 187,192 | 119,560 | 60,747 | 6,885 | 128,618 | 14,412 | 8,442 | 59,333 |
| 6 | Connecticut | 21 | 2,773,608 | 328,495 | 239,290 | 72,957 | 16,248 | 289,765 | 16,798 | 5,933 | 125,372 |
| 7 | Delaware | 3 | 360,590 | 11,657 | 7,036 | 4,317 | 304 | 35,080 | 2,196 | 3,175 | 9,994 |
| 8 | Florida | 6 | 339,375 | 20,708 | 15,714 | 3,689 | 1,305 | 26,270 | 6,373 | 696 | 10,595 |
| 9 | Georgia | 10 | 1,232,320 | 50,864 | 26,726 | 19,730 | 4,408 | 101,608 | 3,474 | 2,370 | 42,696 |
| 10 | Illinois | 48 | 14,103,211 | 1,052,973 | 697,579 | 274,732 | 80,662 | 1,999,348 | 148,157 | 278,072 | 1,021,645 |
| 11 | Indiana | 26 | 2,219,791 | 194,751 | 133,433 | 49,938 | 11,380 | 305,976 | 38,552 | 22,490 | 102,543 |
| 12 | Iowa | 22 | 1,460,993 | 159,559 | 121,850 | 29,989 | 7,720 | 156,305 | 16,421 | 8,137 | 62,785 |
| 13 | Kansas | 11 | 257,248 | 24,751 | 17,406 | 6,108 | 1,237 | 29,231 | 1,838 | 2,919 | 19,905 |
| 14 | Kentucky | 12 | 1,560,270 | 235,169 | 170,487 | 47,904 | 16,778 | 145,385 | 15,916 | 3,713 | 84,647 |
| 15 | Louisiana | 8 | 1,758,989 | 162,924 | 100,511 | 55,444 | 6,969 | 244,121 | 40,409 | 22,765 | 101,327 |
| 16 | Maine | 19 | 1,127,660 | 144,860 | 96,232 | 21,287 | 27,341 | 157,745 | 6,203 | 7,263 | 77,336 |
| 17 | Maryland | 10 | 2,312,323 | 120,257 | 76,886 | 36,751 | 6,620 | 284,097 | 12,641 | 7,884 | 129,560 |
| 18 | Massachusetts | 74 | 16,403,667 | 1,513,832 | 991,972 | 382,098 | 139,762 | 1,895,793 | 170,050 | 43,656 | 964,128 |
| 19 | Michigan | 24 | 3,655,328 | 324,077 | 224,484 | 75,081 | 24,512 | 424,800 | 24,409 | 31,425 | 165,231 |
| 20 | Minnesota | 5 | 1,719,687 | 92,707 | 73,745 | 10,268 | 8,694 | 221,043 | 5,932 | 3,575 | 81,492 |
| 21 | Mississippi | 5 | 192,056 | 16,467 | 10,763 | 5,175 | 529 | 14,857 | 2,013 | 1,358 | 7,525 |
| 22 | Missouri | 16 | 6,071,971 | 413,488 | 205,575 | 180,607 | 27,306 | 767,517 | 82,497 | 17,121 | 357,791 |
| 23 | Montana | 5 | 365,073 | 39,107 | 33,873 | 2,509 | 2,725 | 28,317 | 328 | 212 | 14,522 |
| 24 | Nebraska | 4 | 655,729 | 121,848 | 81,432 | 39,274 | 1,142 | 63,765 | 4,760 | 8,041 | 26,685 |
| 25 | New Hampshire | 7 | 478,849 | 35,199 | 24,990 | 7,798 | 2,411 | 48,540 | 842 | 188 | 21,380 |
| 26 | New Jersey | 25 | 4,324,112 | 270,285 | 184,007 | 63,588 | 22,690 | 576,440 | 31,694 | 22,525 | 236,151 |
| 27 | New York | 96 | 33,677,724 | 2,404,843 | 1,461,861 | 592,247 | 350,735 | 3,771,757 | 179,600 | 75,690 | 1,681,432 |
| 28 | North Carolina | 7 | 322,344 | 29,097 | 16,805 | 9,524 | 2,768 | 28,215 | 3,219 | 1,772 | 14,084 |
| 29 | Ohio | 62 | 9,132,480 | 787,224 | 572,541 | 178,817 | 35,866 | 863,348 | 77,249 | 31,120 | 372,540 |
| 30 | Oregon | 6 | 653,912 | 69,923 | 51,680 | 12,007 | 6,236 | 86,486 | 5,218 | 7,177 | 42,225 |
| 31 | Pennsylvania | 98 | 15,624,813 | 1,553,534 | 1,206,082 | 263,968 | 83,484 | 2,037,248 | 265,447 | 58,374 | 927,969 |
| 32 | Rhode Island | 7 | 1,892,477 | 282,185 | 220,484 | 50,907 | 10,794 | 214,981 | 27,501 | 11,820 | 93,842 |
| 33 | South Carolina | 7 | 398,662 | 23,956 | 14,089 | 4,894 | 4,973 | 35,435 | 3,302 | 1,626 | 16,083 |
| 34 | Tennessee | 8 | 1,079,237 | 96,734 | 71,996 | 15,984 | 8,754 | 126,352 | 2,620 | 2,561 | 71,416 |
| 35 | Texas | 17 | 993,600 | 111,110 | 84,057 | 20,890 | 6,163 | 110,395 | 5,489 | 2,662 | 59,880 |
| 36 | Utah | 3 | 356,879 | 54,609 | 45,578 | 7,249 | 1,782 | 41,187 | 1,569 | 935 | 14,041 |
| 37 | Vermont | 9 | 201,179 | 26,183 | 20,100 | 3,254 | 2,829 | 20,705 | 304 | 866 | 7,916 |
| 38 | Virginia | 16 | 1,009,356 | 94,060 | 57,431 | 25,036 | 11,593 | 96,804 | 9,666 | 10,280 | 42,950 |
| 39 | Washington | 8 | 1,576,018 | 186,485 | 143,561 | 29,097 | 13,827 | 135,767 | 16,979 | 12,639 | 59,272 |
| 40 | West Virginia | 8 | 652,862 | 48,946 | 35,151 | 10,988 | 2,807 | 48,669 | 3,889 | 823 | 24,417 |
| 41 | Wisconsin | 17 | 1,995,024 | 137,461 | 93,234 | 34,692 | 9,535 | 165,173 | 35,111 | 11,947 | 60,991 |
| 42 | All other states and territories[2] | 11 | 1,575,605 | 69,742 | 44,311 | 17,825 | 7,606 | 191,929 | 12,495 | 2,075 | 85,802 |
| 43 | Hawaii and Porto Rico | 5 | 330,350 | 20,799 | 15,597 | 2,126 | 3,076 | 27,677 | 1,556 | 330 | 13,434 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.
[2] Includes states and territories having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico, 1.

EXPENSES, BY STATES AND TERRITORIES: 1902.[1]

| MAINTENANCE—continued. | | | TRANSPORTATION. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Equipment—Continued. | | | Operation of power plant. | | | | | | Operation of cars. | | | |
| Electric, cable, etc., equipment of cars. | Miscellaneous. | Miscellaneous shop expenses. | Total. | Wages. | Fuel. | Water. | Lubricants and waste. | Miscellaneous supplies and expenses. | Hired power. | Total. | Superintendence of transportation. | Wages of conductors. | |
| $5,325,125 | $668,875 | $842,711 | $23,062,328 | $4,599,487 | $12,827,322 | $634,026 | $500,967 | $629,008 | $3,871,518 | $62,454,679 | $2,598,935 | $24,070,921 | 1 |
| 36,762 | 3,436 | 3,288 | 114,063 | 23,074 | 67,684 | 4,140 | 3,233 | 1,479 | 14,453 | 300,598 | 20,273 | 105,877 | 2 |
| 5,290 | 105 | 456 | 55,129 | 15,347 | 26,814 | 2,183 | 2,075 | 162 | 8,548 | 87,830 | 2,551 | 21,905 | 3 |
| 157,048 | 21,461 | 15,196 | 878,716 | 186,522 | 428,453 | 4,388 | 14,152 | 20,451 | 224,750 | 2,762,258 | 73,246 | 1,181,580 | 4 |
| 39,552 | 1,875 | 5,004 | 240,298 | 73,144 | 136,386 | 3,509 | 3,820 | 1,925 | 21,514 | 531,548 | 16,032 | 224,862 | 5 |
| 114,756 | 5,754 | 21,152 | 438,707 | 102,549 | 260,027 | 8,000 | 9,855 | 8,211 | 50,065 | 1,114,410 | 30,914 | 442,579 | 6 |
| 13,916 | 1,319 | 4,480 | 84,804 | 15,384 | 61,600 | 1,527 | 3,297 | 310 | 2,686 | 134,871 | 1,680 | 60,080 | 7 |
| 7,804 | 200 | 602 | 65,281 | 14,798 | 47,652 | 175 | 1,505 | 1,151 | ..... | 102,453 | 6,286 | 39,399 | 8 |
| 40,386 | 2,805 | 9,877 | 176,835 | 41,571 | 113,619 | 8,086 | 7,628 | 3,784 | 2,147 | 400,180 | 9,451 | 158,480 | 9 |
| 388,439 | 59,430 | 103,605 | 2,353,311 | 476,336 | 1,306,304 | 49,239 | 37,869 | 80,584 | 402,979 | 5,825,552 | 89,704 | 2,444,620 | 10 |
| 115,675 | 2,234 | 24,482 | 363,879 | 106,523 | 223,900 | 3,312 | 12,100 | 7,441 | 10,603 | 847,307 | 27,146 | 332,116 | 11 |
| 47,020 | 8,581 | 13,361 | 293,226 | 74,084 | 187,345 | 4,432 | 8,362 | 5,436 | 13,567 | 513,727 | 13,192 | 177,629 | 12 |
| 3,022 | 585 | 962 | 44,452 | 16,790 | 24,986 | 591 | 1,569 | 516 | ..... | 102,482 | 5,080 | 27,020 | 13 |
| 32,570 | 1,492 | 7,047 | 184,764 | 46,165 | 100,244 | 4,902 | 6,760 | 13,547 | 13,146 | 653,671 | 58,187 | 99,084 | 14 |
| 66,198 | 3,414 | 10,008 | 295,083 | 76,026 | 172,626 | 511 | 20,607 | 23,313 | 2,000 | 831,936 | 10,610 | 346,139 | 15 |
| 56,429 | 1,960 | 8,554 | 200,531 | 52,744 | 84,798 | 27,501 | 4,347 | 6,278 | 24,863 | 377,503 | 18,059 | 141,941 | 16 |
| 132,124 | 73 | 1,815 | 461,108 | 89,296 | 268,550 | 9,847 | 5,303 | 2,203 | 85,909 | 1,017,517 | 25,448 | 443,261 | 17 |
| 672,204 | 28,057 | 17,698 | 2,573,845 | 469,865 | 1,522,155 | 63,347 | 47,979 | 43,435 | 427,064 | 7,444,107 | 640,791 | 2,660,947 | 18 |
| 168,807 | 13,027 | 21,901 | 660,257 | 175,669 | 393,744 | 1,527 | 20,472 | 14,073 | 54,772 | 1,576,731 | 56,533 | 592,063 | 19 |
| 125,793 | 1,850 | 2,401 | 263,689 | 48,538 | 69,792 | 2,023 | 2,541 | 7,005 | 133,790 | 784,491 | 21,488 | 299,127 | 20 |
| 3,111 | 661 | 189 | 61,945 | 14,073 | 39,643 | 2,441 | 2,659 | 1,511 | 1,618 | 40,765 | 1,395 | 15,229 | 21 |
| 240,660 | 10,753 | 58,695 | 970,997 | 242,381 | 643,115 | 47,332 | 26,959 | 7,560 | 3,650 | 2,713,951 | 90,849 | 1,109,345 | 22 |
| 11,349 | 710 | 1,196 | 58,983 | 12,053 | 19,282 | 1,363 | 797 | 1,098 | 24,390 | 140,188 | 600 | 57,842 | 23 |
| 24,164 | 115 | ..... | 122,058 | 29,539 | 86,296 | 3,690 | 2,533 | ..... | ..... | 264,686 | 1,875 | 119,273 | 24 |
| 18,572 | 1,308 | 6,250 | 134,413 | 21,144 | 38,348 | 1,349 | 1,611 | 1,584 | 70,377 | 162,911 | 7,549 | 67,679 | 25 |
| 238,141 | 19,463 | 28,466 | 753,759 | 112,188 | 301,284 | 17,312 | 14,309 | 17,218 | 291,448 | 1,907,598 | 56,302 | 745,342 | 26 |
| 1,147,418 | 381,005 | 306,612 | 5,266,237 | 659,583 | 3,012,882 | 259,145 | 85,333 | 263,583 | 985,711 | 15,420,303 | 721,152 | 5,528,938 | 27 |
| 7,939 | 701 | 500 | 78,996 | 16,959 | 48,399 | 1,588 | 2,964 | 700 | 8,386 | 79,180 | 4,288 | 29,088 | 28 |
| 294,688 | 19,491 | 68,260 | 1,616,321 | 413,639 | 963,623 | 33,839 | 46,376 | 31,463 | 127,381 | 4,211,137 | 113,153 | 1,663,807 | 29 |
| 30,400 | 1,413 | 53 | 108,877 | 29,980 | 25,022 | 12 | 3,430 | 1,242 | 49,191 | 293,011 | 9,405 | 126,473 | 30 |
| 707,628 | 39,570 | 38,260 | 2,056,849 | 579,052 | 1,060,602 | 29,197 | 60,838 | 16,872 | 310,288 | 7,267,220 | 281,830 | 3,071,514 | 31 |
| 58,220 | 4,655 | 18,943 | 296,212 | 48,397 | 170,237 | 15,203 | 4,165 | 6,021 | 52,189 | 792,790 | 31,513 | 304,091 | 32 |
| 7,351 | 6,640 | 433 | 55,636 | 7,619 | 32,019 | 280 | 1,027 | 429 | 14,262 | 135,242 | 16,906 | 37,981 | 33 |
| 38,133 | 1,229 | 10,893 | 163,842 | 21,759 | 72,189 | 3,815 | 4,081 | 1,878 | 60,620 | 409,102 | 25,700 | 164,145 | 34 |
| 35,788 | 1,459 | 5,117 | 177,436 | 30,359 | 63,843 | 1,133 | 3,375 | 3,450 | 75,276 | 376,369 | 16,338 | 129,006 | 35 |
| 23,467 | 708 | 467 | 59,881 | 2,679 | 5,407 | 188 | 402 | 44 | 51,161 | 162,998 | 7,100 | 65,506 | 36 |
| 9,312 | 1,579 | 728 | 41,449 | 3,989 | 10,005 | ..... | 711 | 219 | 26,525 | 90,641 | 5,210 | 33,683 | 37 |
| 32,971 | 1,250 | 1,687 | 243,083 | 49,806 | 144,727 | 6,721 | 7,180 | 3,473 | 31,176 | 319,064 | 17,734 | 114,522 | 38 |
| 37,102 | 6,386 | 3,389 | 274,662 | 48,888 | 141,364 | 3,374 | 3,589 | 9,491 | 67,956 | 515,418 | 9,980 | 222,103 | 39 |
| 15,783 | 2,279 | 1,478 | 97,029 | 36,655 | 47,276 | 2,572 | 3,055 | 1,439 | 6,032 | 278,868 | 6,582 | 110,890 | 40 |
| 46,120 | 8,394 | 2,610 | 390,939 | 72,092 | 261,830 | 2,527 | 7,290 | 14,884 | 32,316 | 716,787 | 34,856 | 269,268 | 41 |
| 78,013 | 1,448 | 17,096 | 284,746 | 42,228 | 143,250 | 2,205 | 4,809 | 3,545 | 88,709 | 747,278 | 21,947 | 286,237 | 42 |
| 9,385 | 1,586 | 1,386 | 55,327 | 10,617 | 37,829 | 1,013 | 1,097 | 571 | 4,200 | 110,797 | 3,969 | 35,238 | 43 |

TABLE 49.—ANALYSIS OF OPERATING

| | STATE OR TERRITORY. | TRANSPORTATION—continued. Operation of cars—Continued. | | | | | | | MISCELLANEOUS. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Wages of motormen. | Wages of other car service employees. | Wages of car house employees. | Car service supplies. | Miscellaneous car service expenses. | Cleaning and sanding track. | Removal of snow and ice. | Total. | Salaries of general officers. | Salaries of clerks. |
| 1 | United States | $24,662,872 | $2,595,652 | $3,214,605 | $1,905,155 | $1,924,599 | $730,961 | $750,959 | $25,812,009 | $2,998,123 | $2,237,723 |
| 2 | Alabama | 112,639 | 7,489 | 32,738 | 8,268 | 8,293 | 5,071 | ..... | 124,105 | 24,701 | 8,922 |
| 3 | Arkansas | 44,175 | 1,188 | 14,687 | 1,700 | 982 | 639 | 3 | 33,555 | 9,099 | 5,502 |
| 4 | California | 1,187,715 | 103,147 | 81,333 | 66,925 | 30,826 | 36,585 | 601 | 609,016 | 105,628 | 94,947 |
| 5 | Colorado | 231,261 | 3,888 | 16,624 | 12,332 | 15,079 | 9,672 | 1,798 | 208,680 | 38,813 | 30,189 |
| 6 | Connecticut | 442,425 | 32,096 | 57,614 | 16,067 | 29,186 | 28,604 | 34,925 | 419,887 | 127,904 | 44,372 |
| 7 | Delaware | 60,080 | 4,934 | 3,973 | 1,450 | 882 | 361 | 1,431 | 94,178 | 6,400 | 5,181 |
| 8 | Florida | 37,851 | 1,656 | 11,081 | 2,418 | 1,332 | 2,430 | ..... | 62,139 | 18,398 | 11,752 |
| 9 | Georgia | 170,243 | 17,304 | 24,162 | 5,320 | 8,549 | 6,671 | ..... | 218,135 | 46,222 | 22,677 |
| 10 | Illinois | 2,094,870 | 302,081 | 358,302 | 147,441 | 263,683 | 102,580 | 27,271 | 2,819,259 | 287,995 | 164,765 |
| 11 | Indiana | 364,174 | 9,725 | 56,123 | 21,357 | 18,884 | 13,572 | 4,210 | 408,474 | 98,060 | 46,184 |
| 12 | Iowa | 230,912 | 16,505 | 45,349 | 12,502 | 9,673 | 3,284 | 4,681 | 259,804 | 47,738 | 24,734 |
| 13 | Kansas | 53,381 | 2,843 | 4,413 | 5,324 | 1,686 | 2,062 | 673 | 50,058 | 16,590 | 3,630 |
| 14 | Kentucky | 288,499 | 28,914 | 23,244 | 72,591 | 74,510 | 7,352 | 1,290 | 318,510 | 44,832 | 15,914 |
| 15 | Louisiana | 351,266 | 18,886 | 63,990 | 9,569 | 20,017 | 11,459 | ..... | 221,128 | 53,567 | 23,927 |
| 16 | Maine | 142,135 | 10,593 | 16,968 | 4,463 | 27,594 | 2,290 | 13,460 | 197,793 | 22,998 | 20,896 |
| 17 | Maryland | 446,404 | 17,980 | 32,000 | 31,231 | 13,845 | 3,679 | 3,669 | 422,437 | 40,909 | 61,654 |
| 18 | Massachusetts | 2,711,885 | 372,823 | 419,198 | 55,799 | 289,900 | 95,241 | 197,523 | 2,933,327 | 266,635 | 248,465 |
| 19 | Michigan | 631,592 | 68,555 | 117,433 | 41,790 | 45,196 | 10,418 | 13,151 | 657,699 | 125,835 | 78,296 |
| 20 | Minnesota | 294,234 | 29,231 | 75,107 | 26,870 | 21,401 | 12,915 | 4,118 | 327,960 | 43,234 | 36,996 |
| 21 | Mississippi | 17,351 | ..... | 3,727 | 1,185 | 758 | 1,120 | ..... | 49,362 | 12,959 | 4,640 |
| 22 | Missouri | 1,100,274 | 61,838 | 183,694 | 60,425 | 71,066 | 43,461 | 2,999 | 1,179,639 | 136,140 | 85,021 |
| 23 | Montana | 51,886 | 150 | 5,980 | 15,456 | 2,263 | 5,342 | 669 | 76,738 | 11,150 | 7,175 |
| 24 | Nebraska | 119,695 | 11,597 | 5,134 | 4,955 | 168 | 527 | 1,462 | 83,372 | 17,007 | 7,726 |
| 25 | New Hampshire | 67,630 | 3,645 | 7,197 | 2,736 | 963 | 180 | 5,332 | 95,299 | 9,088 | 4,978 |
| 26 | New Jersey | 753,769 | 108,906 | 95,787 | 69,409 | 48,562 | 12,759 | 16,762 | 804,551 | 107,036 | 64,824 |
| 27 | New York | 5,796,023 | 1,001,318 | 619,944 | 873,777 | 556,546 | 72,320 | 250,285 | 6,632,892 | 428,451 | 539,651 |
| 28 | North Carolina | 29,762 | 6,619 | 3,023 | 4,396 | 600 | 1,004 | 400 | 57,135 | 14,275 | 7,424 |
| 29 | Ohio | 1,761,552 | 136,863 | 281,003 | 82,773 | 87,762 | 71,511 | 12,713 | 1,553,649 | 269,697 | 150,200 |
| 30 | Oregon | 126,626 | 7,456 | 9,383 | 6,991 | 1,695 | 4,045 | 937 | 87,588 | 20,783 | 14,910 |
| 31 | Pennsylvania | 3,080,059 | 76,240 | 290,284 | 145,273 | 97,860 | 103,546 | 120,614 | 2,707,610 | 223,299 | 220,163 |
| 32 | Rhode Island | 300,305 | 21,438 | 68,672 | 22,770 | 11,456 | 16,027 | 16,518 | 306,309 | 25,777 | 15,356 |
| 33 | South Carolina | 38,277 | 4,956 | 11,154 | 2,722 | 20,903 | 2,365 | 28 | 68,416 | 17,260 | 4,609 |
| 34 | Tennessee | 176,851 | 6,223 | 11,954 | 13,340 | 6,288 | 4,464 | 137 | 237,734 | 32,075 | 14,673 |
| 35 | Texas | 182,270 | 10,047 | 18,744 | 6,604 | 6,073 | 7,249 | 38 | 218,290 | 56,623 | 15,914 |
| 36 | Utah | 75,059 | ..... | 5,705 | 2,129 | 4,790 | 1,907 | 802 | 38,204 | 9,900 | 2,440 |
| 37 | Vermont | 34,109 | 5,049 | 6,106 | 1,812 | 2,158 | 230 | 2,284 | 22,201 | 6,046 | 1,967 |
| 38 | Virginia | 114,326 | 16,749 | 15,594 | 15,184 | 22,739 | 1,906 | 310 | 204,951 | 42,152 | 15,676 |
| 39 | Washington | 222,087 | 10,368 | 24,308 | 3,434 | 15,849 | 2,429 | 4,860 | 311,290 | 50,775 | 35,095 |
| 40 | West Virginia | 118,573 | 4,037 | 7,034 | 4,011 | 23,790 | 2,422 | 1,529 | 106,707 | 26,284 | 13,173 |
| 41 | Wisconsin | 310,462 | 4,437 | 45,474 | 11,600 | 27,492 | 10,517 | 2,681 | 307,023 | 53,591 | 25,847 |
| 42 | All other states and territories | 290,185 | 47,928 | 45,365 | 10,756 | 33,300 | 10,765 | 795 | 281,910 | 52,247 | 37,256 |
| 43 | Hawaii and Porto Rico | 58,257 | 1,222 | 3,887 | 2,079 | 826 | 4,319 | ..... | 95,366 | 8,959 | 14,098 |

EXPENSES, BY STATES AND TERRITORIES: 1902—Continued.

| MISCELLANEOUS—continued. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Printing and stationery. | Miscellaneous office expenses. | Storeroom expenses. | Stable expenses. | Advertising and attractions. | Miscellaneous general expenses. | Damages. | Legal expenses in connection with damages. | Other legal expenses. | Rent of land and buildings. | Rent of track and terminals. | Insurance. | Wages, supplies, and expenses incidental to electric service not elsewhere included. | |
| $496,381 | $666,997 | $229,237 | $1,430,000 | $1,122,816 | $2,061,821 | $7,529,946 | $1,865,599 | $1,017,854 | $608,344 | $1,471,293 | $2,080,875 | $2,188,753 | 1 |
| 3,896 | 4,850 | 3,040 | 6,832 | 11,078 | 10,966 | 31,054 | 6,266 | 1,100 | 3,473 | 355 | 7,572 | 158,650 | 2 |
| 620 | 510 | 617 | 3,838 | 569 | 5,636 | 2,976 | 387 | 593 | 202 | ..... | 3,006 | 1,555 | 3 |
| 12,053 | 25,143 | 21,763 | 32,956 | 35,547 | 26,578 | 130,769 | 52,707 | 14,045 | 2,100 | 3,299 | 51,481 | ..... | 4 |
| 3,682 | 5,394 | 5,645 | 3,419 | 32,959 | 20,952 | 36,340 | 8,557 | 5,102 | 5,240 | ..... | 12,388 | 4,270 | 5 |
| 7,615 | 10,139 | 2,922 | 9,235 | 47,336 | 28,454 | 46,856 | 8,989 | 30,327 | 4,002 | 5,283 | 46,453 | 182,344 | 6 |
| 1,616 | 1,137 | 150 | 888 | 12,412 | 3,863 | 16,772 | 3,700 | 253 | 99 | 34,035 | 7,672 | ..... | 7 |
| 1,356 | 1,867 | 684 | 1,012 | 8,025 | 8,499 | 3,514 | 1,680 | 1,682 | ..... | ..... | 3,670 | 62,524 | 8 |
| 6,128 | 2,751 | 1,957 | 3,597 | 28,297 | 9,548 | 62,080 | 5,660 | 7,336 | 4,567 | 3,495 | 13,820 | 284,698 | 9 |
| 28,933 | 45,934 | 23,435 | 95,424 | 28,645 | 226,542 | 913,117 | 275,468 | 173,202 | 55,228 | 463,528 | 87,043 | 52,768 | 10 |
| 8,918 | 11,134 | 9,624 | 7,716 | 31,887 | 51,013 | 59,839 | 13,283 | 14,962 | 8,668 | 31,606 | 20,585 | 99,404 | 11 |
| 7,765 | 4,952 | 3,081 | 5,750 | 40,183 | 35,388 | 38,498 | 8,821 | 9,495 | 6,925 | 6,005 | 20,469 | 78,372 | 12 |
| 1,593 | 340 | ..... | 4,511 | 3,454 | 2,490 | 7,340 | 5,269 | 590 | 858 | 100 | 3,288 | 6,279 | 13 |
| 8,838 | 9,041 | 20,036 | 4,088 | 14,344 | 84,324 | 60,759 | 9,691 | 13,507 | 3,355 | 6,600 | 18,181 | 27,771 | 14 |
| 4,407 | 5,627 | 3,846 | 13,882 | 13,109 | 26,096 | 38,270 | 200 | 13,137 | 931 | 820 | 23,309 | 3,797 | 15 |
| 4,642 | 4,015 | ..... | 4,776 | 45,130 | 32,128 | 25,629 | 1,376 | 880 | 8,662 | 5,596 | 21,065 | 49,228 | 16 |
| 11,096 | 8,006 | 110 | 14,694 | 2,216 | 45,401 | 164,913 | 11,344 | 5,499 | 451 | 200 | 55,944 | 6,907 | 17 |
| 111,795 | 71,325 | 10,882 | 34,459 | 92,824 | 203,366 | 664,562 | 195,160 | 53,609 | 139,111 | 366,935 | 474,699 | 42,763 | 18 |
| 21,597 | 29,188 | 6,258 | 5,823 | 56,524 | 92,871 | 121,038 | 16,733 | 27,596 | 16,920 | 17,663 | 41,357 | 11,764 | 19 |
| 6,429 | 4,971 | 10,188 | 4,644 | 6,195 | 56,710 | 106,669 | 18,227 | 8,750 | 4,265 | ..... | 20,682 | 29,797 | 20 |
| 1,187 | 2,014 | ..... | 1,181 | 2,567 | 3,461 | 12,509 | 2,615 | 1,447 | 2,023 | ..... | 2,759 | 8,660 | 21 |
| 16,517 | 12,829 | 14,786 | 24,704 | 50,227 | 97,304 | 568,369 | 51,415 | 37,218 | 5,454 | 7,617 | 72,038 | 26,379 | 22 |
| 413 | 1,286 | 25 | 120 | 39,150 | 6,707 | 3,456 | 100 | 2,500 | 2,442 | ..... | 2,214 | 21,740 | 23 |
| 4,587 | 461 | ..... | 1,205 | ..... | 9,109 | 30,040 | 2,500 | 2,400 | ..... | ..... | 8,335 | ..... | 24 |
| 4,456 | 6,928 | 128 | 3,637 | 16,288 | 8,527 | 12,113 | 2,588 | 419 | 7,665 | 36 | 18,448 | 2,487 | 25 |
| 38,335 | 19,379 | 12,650 | 22,585 | 15,660 | 23,378 | 318,119 | 45,352 | 39,849 | 12,958 | 30,488 | 53,938 | 11,479 | 26 |
| 54,275 | 137,944 | 37,015 | 1,008,873 | 111,378 | 325,300 | 2,173,259 | 831,019 | 232,655 | 120,749 | 205,935 | 426,388 | 181,692 | 27 |
| 1,742 | 2,935 | 560 | 510 | 13,133 | 2,809 | 5,059 | 949 | 2,472 | 400 | 687 | 4,180 | 49,721 | 28 |
| 36,343 | 36,743 | 15,785 | 24,334 | 58,975 | 201,350 | 340,695 | 102,110 | 65,468 | 50,946 | 92,899 | 108,104 | 100,801 | 29 |
| 4,089 | 5,023 | ..... | 2,888 | 2,310 | 5,571 | 10,381 | 3,840 | 5,201 | 1,810 | 5,073 | 5,759 | 8,027 | 30 |
| 48,783 | 146,883 | 3,274 | 41,238 | 191,976 | 248,862 | 894,338 | 115,915 | 128,745 | 23,555 | 156,225 | 264,404 | 2,352 | 31 |
| 122 | 4,867 | ..... | 532 | 783 | 12,200 | 165,357 | 450 | 21,313 | 32,955 | ..... | 26,597 | ..... | 32 |
| 632 | 2,584 | 1,718 | 1,872 | 11,122 | 9,228 | 12,478 | 1,020 | 399 | 642 | ..... | 4,852 | 79,977 | 33 |
| 4,716 | 3,180 | 1,738 | 6,631 | 4,010 | 18,849 | 58,203 | 10,165 | 12,421 | 60,501 | ..... | 10,572 | 45,473 | 34 |
| 5,541 | 5,770 | 1,585 | 8,724 | 14,927 | 12,452 | 62,481 | 13,260 | 7,248 | 3,350 | 1,111 | 9,304 | ..... | 35 |
| 2,689 | 1,455 | ..... | 1,630 | 981 | 3,326 | 7,454 | 3,121 | 1,000 | ..... | ..... | 4,208 | ..... | 36 |
| 533 | 446 | ..... | 2,704 | 3,629 | 3,275 | 387 | 100 | 445 | 746 | ..... | 1,923 | ..... | 37 |
| 4,717 | 7,363 | 2,948 | 525 | 24,531 | 17,577 | 23,676 | 4,380 | 17,004 | 5,672 | 16,647 | 22,083 | 49,394 | 38 |
| 1,859 | 9,352 | 3,275 | 268 | 32,957 | 25,565 | 89,989 | 15,062 | 18,410 | 5,815 | 1,389 | 21,479 | 152,396 | 39 |
| 930 | 1,623 | ..... | 450 | 1,715 | 14,482 | 28,004 | 1,060 | 6,294 | 1,342 | ..... | 11,350 | 72,643 | 40 |
| 5,758 | 5,735 | 5,158 | 9,132 | 6,359 | 19,330 | 99,605 | 9,933 | 14,826 | 2,338 | ..... | 49,411 | 277,641 | 41 |
| 5,233 | 5,873 | 4,354 | 8,713 | 9,904 | 22,334 | 82,979 | 5,127 | 18,455 | 1,924 | 7,666 | 19,845 | ..... | 42 |
| 1,861 | 344 | 903 | 54,142 | 3,018 | 3,225 | 1,570 | 1,453 | 1,983 | 624 | ..... | 3,186 | 20,384 | 43 |

Table 50 shows, for all companies, the percentage which each subdivision of operating expenses bears to the total operating expenses.

TABLE 50.—*Percentage distribution of operating expenses of operating companies: 1902.*

| ITEM OF EXPENSE. | Percentage of total operating expenses. | ITEM OF EXPENSE. | Percentage of total operating expenses. |
|---|---|---|---|
| Aggregate | 100.0 | Car service supplies | 1.3 |
| | | Miscellaneous car service expenses | 1.4 |
| Maintenance of ways and structures, total | 8.5 | Cleaning and sanding track | 0.5 |
| Track and roadway | 5.7 | Removal of snow and ice | 0.6 |
| Electric, cable, etc., lines | 2.1 | Miscellaneous, total | 18.1 |
| Buildings and fixtures | 0.7 | Salaries of general officers | 2.1 |
| Maintenance of equipment, total | 11.7 | Salaries of clerks | 1.6 |
| Steam plant | 0.9 | Printing and stationery | 0.3 |
| Electric, cable, etc., plant | 0.6 | Miscellaneous office expenses | 0.5 |
| Cars | 5.4 | Storeroom expenses | 0.2 |
| Electric, cable, etc., equipment of cars | 3.7 | Stable expenses | 1.0 |
| Miscellaneous | 0.5 | Advertising and attractions | 0.8 |
| Miscellaneous shop expenses | 0.6 | Miscellaneous general expenses | 1.4 |
| Operation of power plant, total | 16.2 | Damages | 5.3 |
| Wages | 3.2 | Legal expenses in connection with damages | 1.3 |
| Fuel | 9.0 | Other legal expenses | 0.7 |
| Water | 0.5 | Rent of land and buildings | 0.4 |
| Lubricants and waste | 0.4 | Rent of track and terminals | 1.0 |
| Miscellaneous supplies and expenses | 0.4 | Insurance | 1.5 |
| Hired power | 2.7 | Wages, supplies, and expenses incidental to electric service not elsewhere included | 1.6 |
| Operation of cars, total | 43.9 | | |
| Superintendence of transportation | 1.8 | | |
| Wages of conductors | 16.9 | | |
| Wages of motormen | 17.3 | | |
| Wages of other car service employees | 1.8 | | |
| Wages of car house employees | 2.8 | | |

It will be seen that almost exactly one-fifth of the total operating expenses were devoted to the maintenance of ways and equipment, while the operation of the power plant, of which cost of fuel is the most important item, required one-sixth of the total expenditure. A considerable number of street railways hire their electric current, either from other street railways, or, more often, from electric light companies, while, in a few instances, steam power is similarly hired. The aggregate expenditure for hired power in 1902 was about one-sixth of the expenditure of all companies for power. By far the most important class of expenditures is that designated as for "operation of cars," which amounted to 43.9 per cent of the total. The wages of conductors and motormen constituted more than one-third of the entire cost of street railway operation. The item "superintendence of transportation" can not, in the case of some railways, be accurately separated from the item "salaries of general officers and clerks," but these instances are not of sufficient importance to affect materially the totals for the country.

A considerable part of the expenditure under the head "advertising and attractions" consists of the cost of maintaining parks and other places of amusement. The revenue derived by street railway companies from such enterprises has been deducted and the item, therefore, represents only net expenditure. The most important of the miscellaneous expenses is that for damages, mostly in personal-injury cases. No less than $7,529,946 was paid by street railway companies for damages in 1902, while the legal expenses connected with claims and suits for damages raised the total expense to $9,395,545, which was one-fifteenth of the total operating expenses of all street railway companies. The companies very generally complain that the public and the courts treat them unfairly in the matter of claims and suits for damages. They allege that there is too general a readiness to blame the railways for injuries which are due wholly or largely to the carelessness of the injured person, and that juries are prone to assess damages at an unreasonable figure.

The item "wages, supplies, and expenses incident to electric service" was not reported in a uniform manner by all companies. It is intended to represent the expense peculiar to the production and distribution of electric current for light and power, as distinguished from expenses of the railway business proper. Some companies which sell light and power undertake to distinguish that part of their fuel and other power plant expenses, which is attributable to the lighting and power service, from that which is properly attributable to the railway operation. Other companies do not make such a segregation, but place under the last subdivision in the account only such expenses as are connected strictly with the distribution of current for light and power, excluding those due to its generation.

*Operating expenses of companies, classified according to power.*—Tables 51 and 52 present for the groups of railway companies, classified according to power used, the amount and percentage, respectively, of operating expenses falling under the six main divisions. In considering these statistics, it should be remembered that the ratio of operating expenses to operating earnings differs materially in the various groups of railways.

TABLE 51.—OPERATING EXPENSES OF COMPANIES, CLASSIFIED ACCORDING TO POWER: 1902.[1]

| | Total. | ELECTRIC, SURFACE. | | | Animal. | Steam and electric elevated. | Cable, surface and inclined planes. | Steam, surface. |
|---|---|---|---|---|---|---|---|---|
| | | Without commercial lighting. | With commercial lighting. | Part time. | | | | |
| Number of companies | 799 | 556 | 112 | 57 | 52 | 5 | 14 | 3 |
| Operating expenses, total | $142,312,597 | $118,236,568 | $12,834,941 | $1,439,174 | $1,077,736 | $8,151,926 | $552,812 | $19,440 |
| Maintenance of ways and structures | 12,118,296 | 10,290,505 | 1,035,566 | 107,028 | 50,723 | 567,689 | 62,570 | 4,215 |
| Maintenance of equipment | 16,676,532 | 14,443,364 | 1,115,583 | 143,375 | 68,366 | 848,272 | 53,740 | 3,832 |
| Operation of power plant | 23,062,328 | 18,199,604 | 2,487,822 | 325,991 | ..... | 1,937,877 | 108,609 | 2,425 |
| Operation of cars | 62,454,679 | 53,398,930 | 4,066,636 | 534,287 | 432,978 | 3,750,119 | 265,749 | 5,980 |
| Miscellaneous | 25,812,009 | 21,846,383 | 2,018,893 | 307,963 | 525,669 | 1,047,969 | 62,144 | 2,988 |
| Wages, supplies, and expenses incidental to electric service, not elsewhere included | 2,188,753 | 57,782 | 2,110,441 | 20,530 | ..... | ..... | ..... | ..... |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

TABLE 52.—PERCENTAGE DISTRIBUTION OF OPERATING EXPENSES OF COMPANIES, CLASSIFIED ACCORDING TO POWER: 1902.

| | Total. | ELECTRIC, SURFACE. | | | Animal. | Steam and electric elevated. | Cable, surface and inclined planes. | Steam, surface. |
|---|---|---|---|---|---|---|---|---|
| | | Without commercial lighting. | With commercial lighting. | Part time. | | | | |
| Operating expenses, total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Maintenance of ways and structures | 8.5 | 8.7 | 8.1 | 7.4 | 4.7 | 7.0 | 11.3 | 21.7 |
| Maintenance of equipment | 11.7 | 12.2 | 8.7 | 10.0 | 6.3 | 10.4 | 9.7 | 19.7 |
| Operation of power plant | 16.2 | 15.4 | 19.4 | 22.7 | ..... | 23.8 | 19.7 | 12.5 |
| Operation of cars | 43.9 | 45.2 | 31.7 | 37.1 | 40.2 | 46.0 | 48.1 | 30.7 |
| Miscellaneous | 18.2 | 18.5 | 15.7 | 21.4 | 48.8 | 12.8 | 11.2 | 15.4 |
| Wages, supplies, and expenses incidental to electric service, not elsewhere included | 1.5 | (1) | 16.4 | 1.4 | ..... | ..... | ..... | ..... |

[1] Less than one-tenth of 1 per cent.

Animal power railways show the lowest proportion of expenditure for maintenance of ways and structures. This is due in part to the relatively simple construction and equipment of such lines and the low degree of wear and tear on them; in part, perhaps, to the disposition to let such properties, which are becoming anachronisms, run down rather than to maintain them.

The expense for the operation of power plant is naturally greater among electric railways which have commercial lighting plants than among those which do not, since the cost of producing current constitutes a greater proportion of the total operating expense in the lighting business than in the railway business. The large proportion of the expenditure of elevated railroads for operation of "power plant" is partly explained by the fact that the Manhattan Elevated Railway was largely operated by steampower during the census year, the fuel consumption of the locomotives being far greater proportionately than that of powerhouse engines. The company has since changed its motive power, and the report of the company for the year following that of the census inquiry shows a remarkable decrease in operating expenses per car mile and in the ratio of expenses to earnings. Animal power railways present no item for power plant expenses, the stable expenses being included under the "miscellaneous" group, which is thus made relatively very much greater for such railways than for other classes.

The statistics of the three ordinary cable railways in San Francisco present a decidedly different distribution of expenses from that of the inclined planes which are combined with them in the foregoing tables. For the ordinary cable railways the proportions of the various classes of expense to the total operating expenses were: Maintenance of ways and structures, 11.25 per cent; maintenance of equipment, 11.15 per cent; operation of power plant, 13.13 per cent; operation of cars, 54.94 per cent; and miscellaneous expenses, 9.53 per cent.

*Operating expenses of companies, classified according to population.*—Tables 53 and 54 show the amount and percentage of the six main classes of operating expenses for all railway companies in the various urban and interurban groups. Similar statistics for full-time electric surface railway companies not furnishing commercial lighting are presented in Tables 55 and 56.

TABLE 53.—OPERATING EXPENSES OF COMPANIES, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 799 | 65 | 47 | 83 | 312 | 58 | 239 |
| Operating expenses, total | $142,312,597 | $67,300,048 | $27,308,769 | $13,480,577 | $8,068,172 | $6,076,983 | $20,058,048 |
| Maintenance of ways and structures | 12,118,296 | 5,126,079 | 2,520,809 | 1,362,758 | 710,918 | 541,414 | 1,856,318 |
| Maintenance of equipment | 16,676,532 | 8,599,760 | 2,886,438 | 1,390,604 | 796,703 | 753,184 | 2,249,843 |
| Operation of power plant | 23,062,328 | 9,641,891 | 3,863,120 | 2,176,316 | 1,984,154 | 1,339,441 | 4,057,406 |
| Operation of cars | 62,454,679 | 31,099,653 | 18,087,521 | 5,516,299 | 2,744,297 | 2,064,552 | 7,942,357 |
| Miscellaneous | 25,812,009 | 12,832,665 | 4,668,998 | 2,344,988 | 1,294,582 | 1,242,492 | 3,428,334 |
| Wages, supplies, and expenses incidental to electric service, not elsewhere included | 2,188,753 | ..... | 281,883 | 689,612 | 557,568 | 135,900 | 523,790 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

TABLE 54.—PERCENTAGE DISTRIBUTION OF OPERATING EXPENSES OF COMPANIES, CLASSIFIED ACCORDING TO POPULATION: 1902.

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Operating expenses, total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Maintenance of ways and structures | 8.5 | 7.6 | 9.2 | 10.1 | 8.8 | 8.9 | 9.3 |
| Maintenance of equipment | 11.7 | 12.8 | 10.6 | 10.3 | 9.9 | 12.4 | 11.2 |
| Operation of power plant | 16.2 | 14.3 | 14.2 | 16.2 | 24.5 | 22.0 | 20.2 |
| Operation of cars | 43.9 | 46.2 | 47.9 | 40.9 | 33.9 | 34.0 | 39.6 |
| Miscellaneous | 18.2 | 19.1 | 17.1 | 17.4 | 16.0 | 20.5 | 17.1 |
| Wages, supplies, and expenses incidental to electric service, not elsewhere included | 1.5 | ..... | 1.0 | 5.1 | 6.9 | 2.2 | 2.6 |

TABLE 55.—OPERATING EXPENSES OF FULL-TIME ELECTRIC SURFACE RAILWAY COMPANIES, WITHOUT COMMERCIAL LIGHTING, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 556 | 47 | 38 | 66 | 165 | 40 | 200 |
| Operating expenses, total | $118,236,568 | $58,089,586 | $24,684,272 | $9,866,539 | $4,888,638 | $4,579,621 | $17,127,912 |
| Maintenance of ways and structures | 10,290,505 | 4,506,096 | 2,306,248 | 1,016,903 | 437,370 | 422,570 | 1,601,318 |
| Maintenance of equipment | 14,443,364 | 7,686,901 | 2,648,411 | 1,019,386 | 476,065 | 607,826 | 2,004,775 |
| Operation of power plant | 18,199,604 | 7,665,085 | 3,457,884 | 1,519,183 | 996,542 | 1,034,890 | 3,526,020 |
| Operation of cars | 53,398,930 | 26,936,798 | 11,963,891 | 4,153,625 | 1,798,273 | 1,556,444 | 6,989,899 |
| Miscellaneous expenses | 21,846,383 | 11,294,706 | 4,307,838 | 1,657,442 | 680,388 | 957,891 | 2,948,118 |
| Wages, supplies, and expenditures incidental to electric service, not elsewhere included | 57,782 | ..... | ..... | ..... | ..... | ..... | 57,782 |

[1] Exclusive of reports for 16 companies which failed to furnish this information.

TABLE 56.—PERCENTAGE DISTRIBUTION OF OPERATING EXPENSES OF FULL-TIME ELECTRIC SURFACE RAILWAY COMPANIES, WITHOUT COMMERCIAL LIGHTING, CLASSIFIED ACCORDING TO POPULATION: 1902.

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Operating expenses, total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Maintenance of ways and structures | 8.7 | 7.8 | 9.3 | 10.9 | 10.0 | 9.2 | 9.4 |
| Maintenance of equipment | 12.2 | 13.2 | 10.7 | 10.9 | 10.8 | 13.3 | 11.7 |
| Operation of power plant | 15.4 | 13.2 | 14.0 | 16.2 | 22.7 | 22.6 | 20.6 |
| Operation of cars | 45.2 | 46.4 | 48.5 | 44.3 | 41.0 | 34.0 | 40.8 |
| Miscellaneous | 18.5 | 19.4 | 17.5 | 17.7 | 15.5 | 20.9 | 17.2 |
| Wages, supplies, and expenditures incidental to electric service, not elsewhere included | (1) | ..... | ..... | ..... | ..... | ..... | 0.3 |

[1] Less than one-tenth of 1 per cent.

Tables 55 and 56, applying to a more homogeneous class of railways, are more significant than Tables 53 and 54, and the following discussion is accordingly confined to them. These tables reveal considerable differences among the population groups in the distribution of operating expenses. The expense of maintaining ways and structures is relatively least in urban centers of more than 500,000 inhabitants, as might be expected from the small proportion of trackage in such centers to the total amount of traffic. For the same reason, on the other hand, the largest cities, in which, presumably, cars see more and harder service than in small towns, show a greater proportion of expenditure for maintenance of equipment than appears in any other group except the fast, long interurban railways, on which, by reason of the high speed maintained, cars are subjected to severe wear and tear.

In the case of full-time electric surface railways without lighting plants there is a progressive increase in the proportion of expenses for the operation of power plant as we descend the scale of population of urban centers served. Other things being equal, the greater the density of traffic and the larger the scale on which the power plant is constructed, the lower will be the cost of power per unit of traffic. The fact that the proportion of expenses for power plant in the case of all classes of companies combined, is higher in the urban centers of the first group than in those of the second is due to the presence of elevated railways in the largest cities. That the expense for the operation of cars, which consists chiefly of wages, is a smaller proportion of the total in urban centers of less than 100,000 inhabitants than in larger urban centers is due chiefly to the lower rates of wages paid in the smaller towns. The higher proportion of miscellaneous expenses in urban centers of more than 500,000 inhabitants as compared with the other urban groups is chiefly attributable to the heavier damage expenses in such cities.

*Operating expenses of 17 selected companies in the largest cities.*—Since peculiar interest attaches to the operations of street railways in large cities, Table 57 has been prepared, which shows by percentages the distribution of operating expenses in detail for a group of 17 selected companies, situated in 10 of the largest urban centers in the United States. The companies included in the table are as follows: Boston Elevated Railway Company; Cleveland Electric Railway Company; Cleveland City Railway Company; Interurban Street Railway Company and Third Avenue Railroad Company, of New York; Brooklyn Rapid Transit Company; United Railways and Electric Company, of Baltimore; St. Louis Transit Company; Union Traction Company, of Philadelphia; Chicago City Railway Company; Chicago Union Traction Company; International Railway Company and Crosstown Street Railway Company, of Buffalo; Cincinnati Traction Company; United Railroads of San Francisco; Jersey City, Hoboken and Paterson Street Railway Company; and North Jersey Street Railway Company, of Jersey City, Newark, and vicinity. The aggregate operating expenses of these 17 companies were $56,809,980, or about two-fifths of the total for the United States.

TABLE 57.—*Percentage distribution of operating expenses for 17 selected electric surface railway companies in the largest cities: 1902.*

| | |
|---|---|
| Percentage of total operating expenses assignable to: | |
| Maintenance of ways and structures, total | 8.1 |
| Track and roadway | 5.2 |
| Electric, cable, etc., lines | 2.2 |
| Buildings and fixtures | 0.7 |
| Maintenance of equipment, total | 12.8 |
| Steam plant | 0.9 |
| Electric, cable, etc., plant | 0.8 |
| Cars | 6.2 |
| Electric, cable, etc., equipment of cars | 3.8 |
| Miscellaneous equipment | 0.5 |
| Miscellaneous shop equipment | 0.6 |
| Operation of power plant, total | 12.7 |
| Power plant wages | 2.7 |
| Fuel for power | 7.2 |
| Water for power | 0.5 |
| Lubricants and waste for power plant | 0.2 |
| Miscellaneous supplies and expenses of power plant | 0.3 |
| Hired power | 1.8 |
| Operation of cars, total | 47.3 |
| Superintendence of transportation | 2.4 |
| Wages of conductors | 18.8 |
| Wages of motormen | 18.6 |
| Wages of other car-service employees | 2.1 |
| Wages of car-house employees | 2.2 |
| Car service supplies | 0.9 |
| Miscellaneous car-service expenses | 1.3 |
| Cleaning and sanding track | 0.4 |
| Removal of snow and ice | 0.6 |
| Miscellaneous expenses, total | 19.1 |
| Salaries of general officers | 1.1 |
| Salaries of clerks | 1.4 |
| Printing and stationery | 0.3 |
| Miscellaneous office expenses | 0.4 |
| Storeroom expenses | 0.2 |
| Stable expenses | 1.4 |
| Advertising and attractions | 0.1 |
| Miscellaneous general expenses | 1.3 |
| Damages | 7.8 |
| Legal expense in connection with damages | 2.3 |
| Other legal expenses | 0.7 |
| Rent of land and buildings | 0.3 |
| Rent of track and terminals | 0.6 |
| Insurance | 1.2 |

A comparison of the distribution of expenses for these companies with that for all companies reveals a number of points of difference which are significant.

## IV.

### ANALYSIS OF INTEREST AND DIVIDENDS.

*Detailed analysis for all companies.*—Table 93 shows for each street railway company the rate and amount of dividends declared during the census year upon its common or preferred stock or both, and the rate of interest on its funded debt. The table also shows the total dividends by states. The amount of interest accrued is shown by states in Tables 38 and 39. The data for the United States are summarized in Table 58, both operating and lessor companies being included.

TABLE 58.—*Interest and dividends of operating and lessor companies combined: 1902.*[1]

| | |
|---|---|
| Number of companies | 957 |
| Funded debt, total amount[2] | $992,709,139 |
| Interest accrued on funded debt | $43,578,961 |
| Ratio of interest to funded debt, percentage | 4.5 |
| Preferred stock, amount | $127,930,179 |
| Number of companies having preferred stock | 85 |
| Number of companies declaring dividends on preferred stock | 40 |
| Dividends declared on preferred stock | $4,301,284 |
| Ratio of dividends to total preferred stock, percentage | 3.47 |
| Amount of preferred stock on which dividends were declared | $83,869,055 |
| Ratio of dividend-bearing preferred stock to total preferred stock, percentage | 67.7 |
| Ratio of dividends to dividend-bearing preferred stock, percentage | 5.1 |
| Common stock, amount | $1,187,642,781 |
| Number of companies declaring dividends on common stock | 258 |
| Dividends declared on common stock | $28,737,887 |
| Ratio of dividends to total common stock, percentage | 2.46 |
| Amount of common stock on which dividends were declared | $560,326,121 |
| Ratio of dividend-bearing common stock to total common stock, percentage | 47.9 |
| Ratio of dividends to dividend-bearing common stock, percentage | 5.1 |
| Both classes of stock, amount | $1,315,572,960 |
| Total number of companies declaring dividends | 286 |
| Total dividends declared | $33,039,171 |
| Ratio of total dividends to total capital stock, percentage | 2.6 |
| Total amount of stock on which dividends were declared | $644,195,176 |
| Ratio of dividend-bearing stock to total capital stock, percentage | 49.8 |
| Ratio of total dividends to total dividend-bearing stock, percentage | 5.1 |

[1] Exclusive of 30 companies which failed to furnish this information and which issued $17,325,000 bonds, $4,000,000 preferred stock, and $18,937,745 common stock.

[2] The amount of funded debt, interest on which was charged to the income account, is not reported, but is equal to nearly the total amount.

The amount of interest accrued on funded debt and charged to the income account during the census year was $43,578,961, which was equal to a rate of 4.5 per cent on the outstanding funded debt. An examination of the rates of interest for individual companies, stated in Table 93, shows that by far the most common rate is 5 per cent. Many of the more recent bond issues, however, and especially those of the largest companies, have been placed at 4.5 per cent, or even at 4 per cent. A large number of companies still have bonds bearing 6 per cent interest, and a few 7 per cent, most of these bonds having been issued at a comparatively early period. The average ratio of interest accrued to the total funded debt, as shown in Table 58, is slightly lower than it would have been had not a few companies in bankruptcy failed to charge interest in the income account, and had not several other companies, very recently completed, charged interest for the census year to the cost of construction rather than to income. As shown elsewhere, however, the amount of interest accrued on funded debt somewhat exceeds the amount actually paid. (See page 56.)

For all street and interurban railways the ratio of total dividends declared to total capital stock is decidedly low—only 2.6 per cent in 1902. Less than one-third of the companies declared any dividends whatever during the census year, and these paid dividends on a little less than one-half of the total outstanding stocks. Even of companies having preferred stock, less than half were able to pay dividends at all, and they paid on about two-thirds of the total amount of such stock for all companies. In judging the significance of these figures, however, the possibility that the companies as a whole may be overcapitalized must be borne in mind.

The dividends of operating street and interurban railway companies represent a smaller percentage of their capitalization than the dividends of lessor companies. The dividends declared by operating companies, which amounted to $15,882,110 in 1902, were equal to 2.1 per cent of the total stock of such companies ($761,705,842) and to 4.6 per cent of their stock that paid dividends ($348,796,456). For lessor companies the dividends average 3.2 per cent of the total capital stock ($530,929,373) and 5.8 per cent of the dividend-bearing stock ($295,398,872). This difference between operating and lessor companies is due to the fact that a considerable part of the most profitable railway trackage, lying in large cities, is held under lease, and that the rentals, which constitute the dividends of the lessor companies, are usually, and naturally enough, fixed so as to absorb nearly the full earning capacity of the leased system at the time when it is taken over by the operating company. When, therefore, as often happens, the operating company has little or no property except what it leases, the additional securities which it may issue must rest chiefly on the anticipation of future increase in earnings, and as a large proportion of the street railway leases have been effected very recently, comparatively little net profit is left at present in such cases for the operating companies.

*Interest and dividends of companies, classified according to population.*—Table 59 shows in condensed form the interest accrued and dividends declared by street and interurban railway companies in the various urban and interurban groups. The statistics are for both operating and lessor companies considered as one system.

TABLE 59.—INTEREST AND DIVIDENDS OF OPERATING AND LESSOR COMPANIES, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000 | Under 25,000. | Fast, long. | Other. |
| Number of companies | 957 | 138 | 56 | 99 | 314 | 60 | 290 |
| Interest accrued | $43,578,961 | $21,460,962 | $8,366,503 | $3,598,997 | $1,732,822 | $2,598,438 | $5,821,239 |
| Ratio of interest to funded debt, percentage | 4.5 | 4.4 | 5.0 | 4.6 | 4.5 | 3.8 | 4.3 |
| Number of companies having preferred stock | 85 | 11 | 9 | 17 | 16 | 11 | 21 |
| Number of companies declaring dividends on preferred stock | 40 | 7 | 7 | 9 | 3 | 7 | 7 |
| Number of companies declaring dividends on common stock | 258 | 80 | 27 | 37 | 37 | 8 | 69 |
| Total number of companies declaring dividends | 286 | 82 | 31 | 45 | 40 | 14 | 74 |
| Total dividends declared | $33,039,171 | $20,958,959 | $7,344,007 | $1,650,123 | $311,575 | $315,224 | $2,459,283 |
| Ratio of dividends to capital stock, percentage | 2.6 | 3.1 | 3.1 | 1.5 | 0.6 | 0.4 | 1.7 |
| Amount of stock on which dividends were declared | $644,195,176 | $370,763,110 | $168,513,240 | $35,137,910 | $6,536,410 | $9,401,975 | $53,842,531 |
| Ratio of dividend bearing stock to total stock, percentage | 49.8 | 54.9 | 71.4 | 32.6 | 13.4 | 12.0 | 36.9 |
| Ratio of dividends to dividend-bearing stock, percentage | 5.1 | 5.7 | 4.4 | 4.7 | 4.8 | 3.4 | 4.6 |

[1] Exclusive of reports for 30 companies which failed to furnish this information.

The rate of interest is highest in urban centers of from 100,000 to 500,000 population, and does not differ materially among the other three urban groups. The fact that the average rate of interest on funded debt of interurban railways of both classes is lower than on urban railways is due in part to the modern origin of interurban companies, most of them having been organized since the fall in the prevailing rate of interest on securities generally. But it is also due in part to the fact that several new companies in this group charged interest during the census year to cost of construction and equipment.

As might be expected, street railways in cities of more than 100,000 population declared dividends on a much larger proportion of their stock, and showed a higher ratio of dividends to total capital stock, than those in smaller cities or than interurban lines. The average ratio of dividends to total capital stock was 3.1 per cent in each of the first two groups; but as a larger proportion of stock declared dividends in urban centers of the second group than in those of the first, the average rate of dividends on stock that bore dividends was lower in the second group of cities.

In none of the other four groups did the ratio of dividends to total capital stock rise even to 2 per cent, and in none of them, except the "other" interurban group, did more than one-third of the capital stock bear dividends. The ratio of dividends to the capital stock that bore dividends was lowest in the case of the fast, long interurban lines, and highest in the case of companies in urban centers of the first group. The differences in these ratios may not, and probably do not, correctly represent the differences in actual profitableness of the several classes of railways, since the street railway companies in smaller towns and the interurban railways are probably somewhat more conservatively capitalized than those in the largest urban centers. In the case of many of the newer companies the absence of dividends is due to their policy of putting surplus earnings into improvements and extensions. It is true, however, beyond question, that in the smaller towns and rural districts a large number of railways have been established which must look to the future for any possible dividends on their stock.

*Dividends of leading individual companies.*—An examination of the statistics of dividends for individual companies in Table 93 reveals the widest differences even among railways operating under roughly similar conditions of traffic. These differences are partly due to the variations in the absolute earning capacity of the companies, but they are also partly due to other factors, such as the varying proportion of total capital represented by funded debt, the varying proportion of the income of operating companies going as rental to lessor companies, and the varying proportion between capitalization and actual cash investment. Many companies in the large cities, and even some of the most important ones, declare no dividends, but usually an explanation of that fact may be found in some of the circumstances just mentioned. Thus the United Railways and Electric Company of Baltimore, Md., which paid no dividends in 1902, has a funded debt of three and one-third times the amount of its stock. The Brooklyn Rapid Transit Company, of New York, which paid no dividends, not only has a funded debt considerably greater than its stock, but, in addition, paid 10 per cent from its earnings on $12,000,000 of the stock of a lessor company, a fact which is significant because, as previously suggested, the capitalization of an operating company which holds most of its trackage under lease is often based chiefly on expectation of future earnings. Indeed in several instances—e. g., the Interurban Street Railway Company of New York, and the Pittsburg Railways Company, of Pittsburg, Pa.—the operating companies have a very small amount of capital stock as compared with the lessor companies which they control. Among other important companies which declared no dividends in 1902 may be mentioned the Third Avenue Railroad Company, of New York, which has a funded debt nearly three times as great as its stock; the Chicago Union Traction Company, of Chicago, Ill., and the Union Traction Company, of Philadelphia, Pa., both of which have exceedingly heavy rental payments; and the leading operating companies in St. Louis, Mo., Milwaukee, Wis., and Indianapolis, Ind., which also have heavy fixed charges.

Of the $15,882,110 of dividends declared by all operating companies, $11,667,726, or 73.5 per cent, was paid by 22 large companies, each of which declared dividends of $200,000 or more. The rates of dividends of these 22 companies were as follows: The United Railroads of San Francisco, Cal., declared 2.25 per cent on its one class of stock. The Capital Traction Company, of Washington, D. C., the South Side Elevated Railway Company, of Chicago, Ill., the Detroit United Railways Company, of Detroit, Mich., the Louisville Railway Company, of Louisville, Ky., the Twin City Rapid Transit Company, of St. Paul and Minneapolis, Minn., the Manhattan Railway Company, of New York city, the Omaha Street Railway Company, of Omaha, Nebr., and the Cleveland Electric Railway Company, of Cleveland, Ohio, each declared dividends of 4 per cent on its common stock. Of these companies, the Twin City Rapid Transit Company and the Louisville Railway Company also reported preferred stock, the former declaring a dividend of 7 per cent and the latter 5 per cent on such stock. The Wilkesbarre and Wyoming Valley Railway Company, of Wilkesbarre, Pa., declared 4.25 per cent, and the International Railway Company, of Buffalo, N. Y., 4.8 per cent on the single class of stock issued. The rate of dividends was 5 per cent in the case of the Old Colony Railway Company, of eastern Massachusetts, the Metropolitan Street Railway Company, of Kansas City, Mo., the United Traction Company, of Albany

and Troy, N. Y., and the Cleveland City Railway Company, of Cleveland, Ohio, none of which reported preferred stock. The Boston and Northern Street Railway Company, of eastern Massachusetts, and the Boston Elevated Railway Company, of Boston, each declared 6 per cent; the Union Street Railway Company, of Providence, R. I., 8 per cent; the Chicago City Railway Company, of Chicago, 9 per cent; and the Coney Island and Brooklyn Railroad Company, 16 per cent, all of these companies having a single class of stock only. The Metropolitan West Side Elevated Railway Company, of Chicago, declared 3 per cent, and the Milwaukee Electric Railway and Light Company, of Milwaukee, 6 per cent on their preferred stock, but paid nothing on their common stock.

*Dividends, by states.*—An examination of the statistics in Table 93 will show wide differences in the ratio of dividends to capital stock among the states. One of the conspicuous features of the table is the relatively high average rate paid by Massachusetts companies, as compared with those in other leading states. The dividends on common stock in Massachusetts averaged 5 per cent for operating and lessor companies together, and while only 27 out of 75 operating companies declared dividends, these comprised most of the large companies. The one company in this state which had preferred stock, a lessor company, declared an 8 per cent dividend. In New York state, on the other hand, only 9 of the 96 operating companies declared dividends on common stock, and the average rate on the common stocks of operating and lessor companies combined was only 2.5 per cent. The amount of preferred stock in the state was small and the average rate of dividends on such stock very low. In Pennsylvania only 18 of the 98 operating companies declared dividends on their common stock; and the average rate of dividends for operating and lessor companies was 3.8 per cent on common stock and 4.8 per cent on preferred stock, which was about one-tenth as much in amount as the common. In nine states and territories, most important among which are Indiana and Tennessee, no companies declared dividends on common stock. The only states in which the average rate of dividends on common stock exceeded 2 per cent are Colorado, District of Columbia, Florida, Illinois, Kentucky, Massachusetts, Minnesota, Nebraska, New York, Ohio, Pennsylvania, and Rhode Island.

## V.

### GENERAL RESULTS OF OPERATION.

In many respects the most interesting information relating to the street railway industry is that which shows the relation of traffic, receipts, and expenditures. Statistics of this character may be regarded as presenting the general results of street railway operation.

*General results of operation of companies, classified according to power.*—Table 60 presents, for all street railways of the United States and for groups of companies classified according to the power used, the percentage which operating expenses bear to operating earnings, or "operating ratio;" the amount of operating earnings per mile of track and per car mile, respectively; the total operating expenses per car mile, together with the expenses per car mile for power plant and for operation of cars; the amount of operating expenses per fare passenger; the amount of passenger earnings per fare passenger; and the net earnings per mile of track.

TABLE 60.—GENERAL RESULTS OF OPERATION, ALL COMPANIES, CLASSIFIED ACCORDING TO POWER: 1902.[1]

| | Total. | Electric, surface. | | | Animal. | Steam and electric elevated. | Cable, surface, and inclined planes. | Steam, surface. |
|---|---|---|---|---|---|---|---|---|
| | | Without commercial lighting. | With commercial lighting. | Part time only. | | | | |
| Number of companies | 799 | 556 | 112 | 57 | 52 | 5 | 14 | 3 |
| Ratio of operating expenses to earnings, percentage | 57.49 | 57.94 | 58.11 | 58.14 | 73.02 | 49.71 | 53.97 | 122.65 |
| Operating earnings per mile of track constructed | $11,152 | $11,045 | $8,978 | $2,978 | $9,454 | $71,889 | $30,937 | $1,314 |
| Operating earnings per car mile | 0.2187 | 0.2168 | 0.2597 | 0.1901 | 0.2603 | 0.1960 | 0.3258 | 0.1464 |
| Operating expenses per car mile, total | 0.1257 | 0.1256 | 0.1509 | 0.1105 | 0.1901 | 0.0975 | 0.1758 | 0.1795 |
| Power plant | 0.0204 | 0.0198 | 0.0293 | 0.0250 | ..... | 0.0232 | 0.0345 | 0.0224 |
| Operation of cars | 0.0552 | 0.0567 | 0.0478 | 0.0410 | 0.0764 | 0.0448 | 0.0845 | 0.0552 |
| Operating expenses per fare passenger | 0.0301 | 0.0294 | 0.0420 | 0.0381 | 0.0321 | 0.0259 | 0.0285 | 0.1144 |
| Passenger earnings per fare passenger | 0.0494 | 0.0493 | 0.0493 | 0.0621 | 0.0432 | 0.0508 | 0.0488 | 0.0458 |
| Net earnings per mile of track | 4,741 | 4,646 | 3,761 | 1,247 | 2,550 | 36,151 | 14,241 | [2]298 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

[2] Deficit.

Attention should be called at the outset to the fact that several of the items in this table for electric railway companies operating commercial lighting plants can not properly be compared with similar items in the other columns, since the total operating expenses and earnings, including those for the lighting business, enter into the computation. A fairly correct idea of the earnings of such companies from the railway business alone may be obtained from the income account by omitting therefrom the income from the sale of current for light and power, although the resulting figures are not quite comparable with those of electric railway companies which do not operate commercial lighting plants, since they also derive a small incidental revenue from the sale of current. With the deduction indicated, companies with commercial lighting plants had

operating earnings of $6,358 per mile of track and 18.39 cents per car mile. Instead, therefore, of having earnings greater per car mile than companies without commercial lighting plants, as the crude figures might imply, they really had railway earnings considerably less per car mile, as might be expected in view of the fact that most of these companies are in the smaller towns. For purposes of rough calculation and comparison it may be assumed that the operating expenses of companies having lighting plants are divided between the railway business and the lighting business in the same proportion in which the earnings are divided. On this assumption the "railway" operating expenses of such companies would be 10.69 cents per car mile and 2.97 cents per passenger. The expense per car mile would thus appear somewhat less than for companies without lighting plants, and such a showing may be accounted for, at least in part, by the fact that the companies with lighting plants, operating in the small towns, have smaller cars and pay lower wages than do companies of the other group. Their operating expenses per passenger, on the other hand, are apparently somewhat greater for the companies with lighting plants.

There is, of course, no one standard by which to judge the success of railway operations. Street railway men themselves, in considering the question, are perhaps most likely to base their conclusions on the percentage which operating expenses bear to operating earnings—the operating ratio, as it is called. Generally speaking, a low ratio of expenses to earnings is regarded as an indication of good management. This, however, is not always the case. It is quite conceivable that a company would be able to earn a higher return on its investment by increasing the amount of its traffic, through a lessening of fares or otherwise, even though the percentage of operating expenses to earnings should be slightly raised as a result. Again, a low ratio of operating expenses to earnings may mean merely that the fares are higher or the service less satisfactory than elsewhere, rather than that the company is peculiarly economical in its operating methods. Conversely, where fares are low the ratio of operating expenses to earnings may be high, while the cost of operation per car mile or per passenger is exceptionally low. Given cars of similar size and character and given similar general conditions of operation, the truest test of the success of railway operations is in the amount of expenses per car mile operated and per passenger carried. Finally, it may be noted that a low ratio of operating expenses to operating earnings is often made possible only by heavy capital investment. Indeed, it is sometimes the case that costly improvements, which materially lessen the expenses of transportation, are not strictly profitable from the standpoint of the investor.

As appears from Table 60, the operating expenses of all street and interurban railway companies in the census year 1902 amounted to 57.5 per cent of their operating earnings. The gross earnings, including those from sale of current and other sources, were equal to $11,152 per mile of track, and to 21.87 cents per mile run by cars of all classes. The passenger earnings per passenger car mile, not shown in the table, averaged 21.14 cents. The average fare, obtained by dividing the passenger earnings by the number of fare passengers, was 4.94 cents, and the total operating expenses per fare passenger—which slightly exceed the expenses properly chargeable to passenger traffic—were 3.01 cents. The average net earnings per mile of track for all companies were $4,741. The ratio of operating expenses to operating earnings is much lower on the street and electric railways of the country as a whole than on the steam railways, which spent 64.7 per cent of their earnings for operation in the year ending June 30, 1902, and in the previous year 64.9 per cent.[1] It is possible that the comparison thus made is not altogether a just one, since 41.4 per cent of their expenses was incurred by steam railways in 1902 for the maintenance of ways and structures, while street and interurban railway companies assigned to maintenance of ways and structures only 8.5 per cent of their operating expenses.[2] Beyond question it costs relatively less to maintain a street railway than a steam railway, since the former has much less track to keep up in proportion to the amount of its earnings. Moreover, the speed of electric cars is less than that of steam trains, and the wear and tear, as well as the injury to property from accident, is therefore less on electric than on steam railways. Again, the roadbed and equipment of most of the electric railways are comparatively new, and they may therefore require less repair and renewal at present than will be necessary later on.[3]

However this may be, it is probable that, with all possible allowances for the difference in conditions and policy with respect to expenditures for maintenance, the proportion of operating expenses to earnings would still be found lower on street and electric railways than on steam railways. Such a difference might be attributable to relatively higher charges for transportation on the electric lines. On the other hand, it is to be remembered that a relatively low operating ratio might be secured at the expense of a relatively heavy capital investment. Now the amount of capital liabilities is decidedly greater in proportion to the operating earnings in the case of street railways than in the case of steam railways. In the absence, however, of definite knowledge as to the actual cash investment in either class of railways, it is impossible to

[1] Report of Interstate Commerce Commission on Statistics of Railways, 1902, page 91.
[2] Ibid., page 81.
[3] For a discussion of the subject of allowances for depreciation and renewal, see page 57.

decide to what extent the lower ratio of operating expenses to earnings on electric lines may actually be due to the heavier investment of capital.

For the purpose of further considering the ratio of expenses to earnings for the different classes of railways, the averages shown in Table 60 have been supplemented by the following table, showing the number of companies which have operating ratios falling within specified limits. In studying this table the differences in the importance of the individual companies should be borne in mind.

TABLE 61.—*Distribution of railway companies in the several groups, classified according to power, with respect to their operating ratio: 1902.*[1]

| PERCENTAGE OF OPERATING EXPENSES TO EARNINGS. | NUMBER OF COMPANIES. | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Total. | Electric surface. | | | Animal. | Steam and electric elevated. | Cable, surface, and inclined planes. | Steam, surface. |
| | | Without commercial lighting. | With commercial lighting. | Part time. | | | | |
| Total | 799 | 556 | 112 | 57 | 52 | 5 | 14 | 3 |
| Under 50 | 73 | 43 | 12 | 9 | 3 | 1 | 5 | ..... |
| 50 but under 60 | 169 | 120 | 29 | 7 | 7 | 3 | 3 | ..... |
| 60 but under 70 | 216 | 159 | 33 | 14 | 7 | 1 | 2 | ..... |
| 70 but under 80 | 121 | 90 | 18 | 3 | 8 | ..... | 2 | ..... |
| 80 but under 90 | 92 | 64 | 13 | 7 | 6 | ..... | 1 | 1 |
| 90 and over | 128 | 80 | 7 | 17 | 21 | ..... | 1 | 2 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

Electric surface railways without commercial lighting plants, the most important class, show an average operating ratio of 57.9 per cent. It is seen in Table 61 that 43 of the 556 companies of this class devote less than 50 per cent of their earnings to operating expenses, while on the other hand 80 such companies devote more than 90 per cent of their earnings to expenses. The largest group is that of companies that have an operating ratio of between 60 and 70 per cent, but they operate much less track than companies with a ratio of from 50 to 60 per cent.

That a considerable degree of economy is secured by combining light and power plants with railways in towns of smaller population may probably be deduced from the fact that the average operating ratio for companies having commercial lighting plants—58.1 per cent—was practically the same as that for electric companies without such plants, in spite of the fact that the former are for the most part situated in towns of moderate size where the railway traffic is comparatively small. The operating ratio for companies with lighting plants is indeed considerably lower than that for those without such plants in cities of corresponding size, for it will be noted that much more than half of the business of companies of this group is done in places of less than 100,000 inhabitants; and, as appears in Table 63, the operating ratio for full-time companies without lighting plants in towns of less than 25,000 inhabitants is 68.8 per cent, and in urban centers of from 25,000 to 100,000 inhabitants 61 per cent.

The lowest operating ratio, 49.7 per cent, was that of elevated railways. As only one of the five companies had an operating ratio below 50 per cent, while three reported ratios between 50 and 60 per cent, and the fifth reported a ratio between 60 and 70 per cent, the great inequality in the relative importance of the companies is quite evident.

The explanation of the low average operating ratio for elevated railways is to be found in the fact that the operating earnings per passenger were slightly higher than for electric surface railways without lighting plants, while the operating expenses per car mile were about 20 per cent lower. It is, however, impossible to draw from these statistics any satisfactory conclusion regarding the conditions of operation on elevated railways at the present time, because a large part of the traffic of the most important company during the census year was handled by steam power, while since that time steam has been replaced by electricity. The fact that in 1902 the power plant expenses of elevated railways were 2.3 cents per car mile, as compared with only 1.9 cents for electric surface railways without lighting plants, was undoubtedly due chiefly to the higher cost of steam traction, though it was probably also due in some measure to the larger cars and higher speed on elevated railways. On the other hand, large cars and high speed tend to reduce the expenses of running cars, particularly the important item of wages of motormen, or engineers, and gatemen. The practice of running cars in trains also reduces wages of motormen or engineers per car mile, and this saving is not wholly offset by the expenses of maintaining ticket sellers and ticket "choppers" at the stations.

Some idea of the financial advantage of electric traction on elevated railways as compared with steam traction may be gained from a comparison of the annual reports of the Manhattan Elevated Railway Company for the two years ending September 30, 1901 and 1903, respectively. In 1901, when steam was used almost exclusively, the operating ratio was 55.4 per cent; in 1903, when electric power was almost the sole means of traction, the ratio was only 42.9 per cent. The operating expense of this company per passenger was 2.72 cents in 1901 and only 2.12 cents in 1903. The operation of 6-car trains instead of 5-car trains, which was made possible by electricity, contributed materially to this reduction in operating expenses.

Cable and inclined plane railways likewise show a conspicuously low operating ratio. Five of the 14 companies reported a ratio below 50 per cent, and 8 reported a ratio below 60 per cent. The 3 ordinary cable railways show an average operating ratio of 54.7 per cent. The fact that these ordinary cable railways are all in a large city and have very dense traffic makes their results more favorable than would be the case if the conditions

under which they operate were similar to those of the average electric railway. Under similar conditions of traffic electric traction is cheaper than cable traction in the matter of current expenses, to say nothing of the fact that the capital investment per mile in an overhead trolley electric railway is much less than in a cable system. In 1890, when the number of cable railways was considerably greater than at the present time, the operating expenses of such companies, as they were reported for the Eleventh Census, were 65.7 per cent of their operating earnings. The high earnings and high expenses per car mile for the inclined planes are explained by their short tracks, dense traffic, and relatively large capital investment per mile of track.

Animal power railways, as might be expected, present a much less favorable operating ratio, 73.0 per cent, than most other classes shown. Of the 52 companies of this class, 21 report operating expenses exceeding 90 per cent of operating earnings. On the other hand, 10 companies show operating ratios under 60 per cent. The explanation of the high average ratio is found partly in the fact that the average earnings per passenger are lower for animal power railways than for those of any other class, but the explanation lies chiefly in the heavy expense of operation, which amounts to no less than 19 cents per car mile. While the group of animal power railways includes a large number of companies in small towns, where the traffic is very light, the greater part of the earnings and expenses fall to the four companies in New York city, which have very dense traffic; and the averages for the group as a whole are therefore largely determined by the figures for these four companies. When it is remembered that the horse cars are much smaller than the electric cars, the enormous reduction in expenses which has resulted from the introduction of electricity may be appreciated by comparing the operating expenses per car mile for animal power roads with those for electric railways without lighting plants, 12.56 cents.

*Effect of change to electric traction on cost of operation.*—Interesting conclusions might be drawn from the detailed statistics of leading railway systems, showing the reduction in operating expenses which followed the introduction of electric power. Comparable figures are, however, very difficult to obtain because of changes in the ownership of railways and because of the extension of the old lines. Consolidation of formerly independent lines very often accompanied the change of power, and where this has been the case it is not only hard to obtain comparable statistics, but it is also impossible to distinguish economies due to change of power from those due to consolidation.

The "electrification" of the street railway lines of Philadelphia took place about 1894, much the greater part of the trackage before that time having been operated by animal power. In 1893 the operating expenses of all the lines of the city, $5,322,734, were 63.1 per cent of the operating earnings. In 1895 the ratio fell to 59.7 per cent; in 1896 to 52.5 per cent; and in 1898 to 41 per cent. In the last-named year the expenses were only $4,608,163, or more than 10 per cent less than in 1893, while earnings had increased one-third. Combination also contributed to the economy in Philadelphia.[1]

Another example of the economy of electric traction may be taken from the West End Street Railway Company of Boston, now controlled by the Boston Elevated Railway Company. In the year ending September 30, 1889, this company was just beginning to install electric traction. Its earnings were $5,204,512; its operating expenses, exclusive of taxes and rentals, $4,098,533, the operating ratio being 78.7 per cent. The conversion to electric traction had largely been accomplished by the end of 1894, nearly three-fourths of the track being then operated exclusively by electricity. For that year the operating earnings were $6,823,879; the expenses $4,805,605; the operating ratio 70.4 per cent. The marked increase in traffic indicated by the figures of earnings was in considerable measure attributable to improvement in the service, as there had been comparatively little addition to the trackage of the company.[2]

The Third Avenue Railroad Company of New York had precisely the same length of track (directly operated) ten years ago that it has to-day. In the year ending June 30, 1892, its main line was operated by animal power, although it had two shorter branches with cable traction. In that year the earnings were $1,741,072; the operating expenses $1,184,804; the operating ratio 68 per cent. The traffic was very dense, and there were probably fewer long-distance passengers in 1902. Under cable traction, which was introduced in 1894, the expenses were materially reduced in proportion to the traffic. Apparently a still further reduction has been accomplished by the recent change to electricity. It is impossible to speak with certainty, because the financial difficulties of the Third Avenue Railroad and its transfer to the Metropolitan Street Railway Company have made satisfactory comparison of the cost of operation in recent years impracticable. According to the report of the company for the year ending June 30, 1901, the operating expenses for a greatly increased traffic were less than in 1892, and the operating ratio was only 49.6 per cent. In 1902 there were heavy expenditures for maintenance and for damages, but the operating ratio rose only to 61.3 per cent, which was still decidedly lower than the ratio under horse traction.[3]

*General results of operation of companies classified according to population.*—The results of the operations

[1] Compiled from Street Railway Investor's Guide.
[2] Compiled from Reports of Massachusetts Railroad Commissioners, 1889 and 1894.
[3] Compiled from the Reports of the New York Railroad Commissioners, 1892, 1899, 1902.

of street railways classified according to population of urban centers served, and of the two classes of interurban railways, are summarized in Table 62, which includes the same items as were presented in the corresponding table for companies classified according to power. More instructive is Table 63, which presents similar data for full-time electric surface railways without commercial lighting plants. The following discussion is based chiefly upon the data presented in Table 62.

TABLE 62.—GENERAL RESULTS OF OPERATION OF COMPANIES, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 799 | 65 | 47 | 83 | 312 | 53 | 239 |
| Ratio of operating expenses to earnings, percentage | 57.49 | 55.69 | 53.54 | 59.31 | 68.09 | 59.80 | 64.83 |
| Operating earnings per mile of track constructed | $11,152 | $24,360 | $14,329 | $8,009 | $5,440 | $3,673 | $5,253 |
| Operating earnings per car mile | 0.2187 | 0.2318 | 0.2119 | 0.2036 | 0.1891 | 0.2197 | 0.2075 |
| Operating expenses per car mile, total | 0.1257 | 0.1291 | 0.1134 | 0.1207 | 0.1287 | 0.1314 | 0.1345 |
| Power plant | 0.0204 | 0.0185 | 0.0160 | 0.0195 | 0.0316 | 0.0289 | 0.0272 |
| Operation of cars | 0.0552 | 0.0597 | 0.0544 | 0.0494 | 0.0437 | 0.0446 | 0.0533 |
| Operating expenses per fare passenger | 0.0301 | 0.0274 | 0.0275 | 0.0323 | 0.0422 | 0.0547 | 0.0355 |
| Passenger earnings per fare passenger | 0.0494 | 0.0482 | 0.0493 | 0.0478 | 0.0483 | 0.0809 | 0.0504 |
| Net earnings per mile of track | 4,741 | 10,798 | 6,658 | 3,259 | 1,736 | 1,477 | 1,847 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

TABLE 63.—GENERAL RESULTS OF OPERATION OF FULL-TIME ELECTRIC SURFACE RAILWAY COMPANIES, WITHOUT COMMERCIAL LIGHTING, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 556 | 47 | 38 | 66 | 165 | 40 | 200 |
| Ratio of operating expenses to earnings, percentage | 57.94 | 56.45 | 54.14 | 60.99 | 68.81 | 59.94 | 65.83 |
| Operating earnings per mile of track constructed | $11,045 | $21,982 | $14,021 | $7,348 | $4,872 | $3,533 | $5,261 |
| Operating earnings per car mile | 0.2168 | 0.2376 | 0.2064 | 0.1865 | 0.1662 | 0.2115 | 0.2068 |
| Operating expenses per car mile, total | 0.1256 | 0.1342 | 0.1118 | 0.1138 | 0.1144 | 0.1267 | 0.1312 |
| Power plant | 0.0193 | 0.0177 | 0.0157 | 0.0185 | 0.0260 | 0.0286 | 0.0270 |
| Operation of cars | 0.0567 | 0.0622 | 0.0542 | 0.0504 | 0.0469 | 0.0431 | 0.0535 |
| Operating expenses per fare passenger | 0.0294 | 0.0276 | 0.0274 | 0.0307 | 0.0351 | 0.0555 | 0.0342 |
| Passenger earnings per fare passenger | 0.0493 | 0.0479 | 0.0494 | 0.0485 | 0.0483 | 0.0845 | 0.0498 |
| Net earnings per mile of track | 4,646 | 9,572 | 6,429 | 2,866 | 1,519 | 1,415 | 1,824 |

[1] Exclusive of reports for 16 companies which failed to furnish this information.

The great advantage which the street railways in the large cities have over those in smaller towns is conspicuous in the above tables. The amount of earnings per mile of track for electric surface lines having no lighting plants, which in urban centers of more than 500,000 inhabitants is $21,982, decreases steadily with decreasing population of the centers served, an average of only $4,872 per mile of track being shown for companies in centers of less than 25,000 inhabitants. The amount of net earnings per mile of track decreases even more sharply, being $9,572 for electric railways without lighting plants in urban centers of the first group and only $1,519 in centers of smallest population.

The differences among the groups in the ratio of operating expenses to operating earnings are also marked. In urban centers of more than 500,000 inhabitants railways of all classes combined spent for operation only 55.7 per cent of their operating earnings, and the electric surface railways not furnishing commercial lighting in such centers show a ratio of expenses to earnings only slightly higher. In urban centers of from 100,000 to 500,000 inhabitants the operating ratio is even lower than in the largest cities. On the other hand, in places of from 25,000 to 100,000 inhabitants the operating expenses amounted to 59.3 per cent of operating earnings for all companies combined, and to 60.99 per cent for electric surface companies without commercial lighting plants. In centers of less than 25,000 inhabitants the corresponding operating ratios are 68.1 per cent and 68.8 per cent, respectively. The fast, long interurban railways present quite favorable operating results. The other group of interurban railways on the other hand, including many railways that closely resemble the railways in the smallest towns, spent 64.8 per cent of their earnings for operation.

The differences among the various population groups as regards the ratio of operating expenses to earnings are further indicated in Tables 64 and 65, which show for all railways, and for electric surface railways without commercial lighting plants, respectively, the number of companies falling within stated limits of operating ratios.

TABLE 64.—*Distribution of railway companies in the several urban and interurban groups, according to their operating ratios: 1902.*[1]

| PERCENTAGE OF OPERATING EXPENSES TO OPERATING EARNINGS. | NUMBER OF COMPANIES. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total. | Urban centers, population. | | | | Interurban railways. | |
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Total | 799 | 65 | 47 | 83 | 312 | 53 | 239 |
| Under 50 | 73 | 9 | 10 | 8 | 16 | 8 | 22 |
| 50 but under 60 | 169 | 16 | 23 | 28 | 48 | 15 | 39 |
| 60 but under 70 | 216 | 14 | 6 | 31 | 84 | 17 | 64 |
| 70 but under 80 | 121 | 12 | 5 | 12 | 49 | 7 | 36 |
| 80 but under 90 | 92 | 5 | ..... | 1 | 47 | 2 | 37 |
| 90 and over | 128 | 9 | 3 | 3 | 68 | 4 | 41 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

TABLE 65.—*Distribution of full-time electric surface railway companies, without commercial lighting, in the several urban and interurban groups, according to their operating ratios: 1902.*[1]

| PERCENTAGE OF OPERATING EXPENSES TO OPERATING EARNINGS. | NUMBER OF COMPANIES. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total. | Urban centers, population. | | | | Interurban railways. | |
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Total | 556 | 47 | 38 | 66 | 165 | 40 | 200 |
| Under 50 | 43 | 5 | 6 | 4 | 6 | 6 | 16 |
| 50 but under 60 | 120 | 9 | 21 | 20 | 27 | 11 | 32 |
| 60 but under 70 | 159 | 11 | 6 | 27 | 48 | 12 | 55 |
| 70 but under 80 | 90 | 10 | 3 | 11 | 27 | 6 | 33 |
| 80 but under 90 | 64 | 4 | ..... | 1 | 27 | 2 | 30 |
| 90 and over | 80 | 8 | 2 | 3 | 30 | 3 | 34 |

[1] Exclusive of reports for 16 companies which failed to furnish this information.

It will be observed from Table 65 that in urban centers of more than 500,000 inhabitants only 5 out of the 47 electric surface railways without commercial lighting plants had operating ratios under 50 per cent. Four of these 5 companies, however, operate great railway systems, and the 5 companies together control an aggregate trackage of 1,289.02 miles, which is 27.5 per cent of the total of 4,680.96 miles reported for all electric surface railways in centers of this size. Of the 9 companies in urban centers of more than 500,000 inhabitants that show an operating ratio of from 50 to 60 per cent, 3 have more than 300 miles of track each, and 2 others operate large systems. The total trackage of the 14 companies that show operating ratios under 60 per cent is 2,641.45 miles, or 56.4 per cent of the total trackage for centers having more than 500,000 inhabitants. On the other hand, most of the 22 electric railway companies in the largest centers that show an operating ratio over 70 per cent are small concerns in the outskirts and suburbs. The average operating ratio for the group thus represents pretty closely the conditions for the more important street railway systems of the great centers.

In urban centers of from 100,000 to 500,000 inhabitants 21 of the 38 electric surface railway companies not furnishing commercial lighting reported operating expenses between 50 and 60 per cent of earnings, and 6 companies, with 630.17 miles of track out of a total of 3,251.54 miles for the group, reported a ratio under 50 per cent. Only 5 companies in centers of this size had an operating ratio of 70 per cent or higher. This apparently more favorable distribution of companies in centers of the second rank, as compared with the largest centers, is largely explained by the fact that consolidation has gone so far in the second group that very few small railways, such as exist in some of the centers of the first group, now remain in operation.

In centers of from 25,000 to 100,000 inhabitants only a small proportion of the electric railway companies have an operating ratio of less than 50 per cent, while the largest group is that of companies whose expenses are between 60 and 70 per cent of their operating earnings.

Still less favorable were the conditions shown for the smallest centers, where only one-fifth of the electric railway companies reported an operating ratio under 60 per cent. The largest single group in such centers was that of companies with from 60 to 70 per cent; but more than half of the whole number of companies reported a ratio of 70 per cent or higher, and 30 out of the 165 companies spent more than 90 per cent of their earnings for operation.

The distribution of fast, long interurban railway companies without commercial lighting plants shows a rather wide variation in the proportion of expenses to earnings. Twenty-three of the 40 companies have an operating ratio between 50 and 70 per cent. Of the other interurban railways, almost exactly one-half had an operating ratio of 70 per cent or higher, though the largest single group of companies reported from 60 to 70 per cent.

*Relation of operating ratio to density of traffic.*—Table 66 classifies full-time electric surface railway companies without commercial lighting according to the number of fare passengers per mile of track and the ratio of operating expenses to operating receipts. The fast, long interurban railways are omitted from the table because the number of fare passengers on such railways can not properly be compared with those on other classes of electric railways. The table, however, includes those interurban railways that have been classed under the head of "other" in this report.

TABLE 66.—*Distribution of full-time electric surface railways, without commercial lighting, according to number of fare passengers carried per mile of track operated and according to operating ratio: 1902.*[1]

| NUMBER OF FARE PASSENGERS CARRIED PER MILE OF TRACK OPERATED. | NUMBER OF COMPANIES REPORTING OPERATING RATIO. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total. | Under 50 per cent. | 50 per cent but under 60 per cent. | 60 per cent but under 70 per cent. | 70 per cent but under 80 per cent. | 80 per cent but under 90 per cent. | 90 per cent and over. |
| Total | 514 | 35 | 109 | 147 | 84 | 62 | 77 |
| Under 25,000 | 54 | 5 | 3 | 7 | 12 | 6 | 21 |
| 25,000 but under 50,000 | 72 | 2 | 8 | 14 | 10 | 14 | 24 |
| 50,000 but under 100,000 | 177 | 6 | 80 | 53 | 32 | 33 | 23 |
| 100,000 but under 200,000 | 145 | 9 | 45 | 52 | 28 | 8 | 8 |
| 200,000 but under 300,000 | 34 | 5 | 11 | 11 | 6 | ..... | 1 |
| 300,000 but under 400,000 | 15 | 4 | 7 | 4 | ..... | ..... | ..... |
| 400,000 and over | 17 | 4 | 5 | 6 | 1 | 1 | ..... |

[1] Exclusive of reports for 2 railways carrying freight only, for 16 which failed to furnish this information, and for 40 fast, long interurbans.

In judging these statistics the fact that companies differ materially in importance must be borne in mind. The table shows clearly that an increase in the density of traffic per mile of track is usually accompanied by a reduction of the ratio of operating expenses to earnings. This is due chiefly to the fact that heavy traffic per mile of track is usually accompanied by heavy traffic and earnings per car mile. Proceeding from the group showing the least number of passengers per mile of track to the group showing the greatest number, the number of companies having low operating ratios increases. Nearly two-fifths of the 54 companies reporting less than 25,000 passengers per mile of track showed a ratio of expenses to earnings of 90 per cent or higher, while only 5 had an operating ratio of less than 50 per cent. On the other hand, among the 15 companies reporting between 300,000 and 400,000 passengers per mile of track, there is none with an operating ratio exceeding 70 per cent, and only 4 have a ratio of 60 per cent or more. Similarly, of the 17 companies having more than 400,000 passengers per mile of track, 4 had an operating ratio of less than 50 per cent and 9 a ratio of less than 60 per cent, while only 2 showed a ratio of 70 per cent or higher.

Table 67 classifies full-time electric surface railways without commercial lighting plants, other than fast, long interurban lines, according to the number of passengers per car mile and the ratio of operating expenses to operating earnings.

The close connection between a high number of passengers per car mile and a low operating ratio appears clearly from this table. Of the 198 companies reporting less than 3 passengers per car mile, 88 show an operating ratio of 80 per cent or more, and only 30 had a ratio less than 60 per cent. On the other hand, of the 92 companies with from 4 to 5 passengers per car mile, only 8 present an operating ratio of 80 per cent or higher, and 35 reported a ratio under 60 per cent. Of the 60 companies with 5 or more passengers per car mile, only 16 had an operating ratio of 70 per cent or more, while more than one-half show a ratio under 60 per cent, and one-sixth of them show a ratio less than 50 per cent.

TABLE 67.—*Distribution of full-time electric surface railways, without commercial lighting, according to number of fare passengers carried per car mile and according to operating ratio: 1902.*[1]

| NUMBER OF FARE PASSENGERS CARRIED PER CAR MILE. | NUMBER OF COMPANIES REPORTING OPERATING RATIO. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total. | Under 50 per cent. | 50 per cent but under 60 per cent. | 60 per cent but under 70 per cent. | 70 per cent but under 80 per cent. | 80 per cent but under 90 per cent. | 90 per cent and over. |
| Total | 514 | 35 | 110 | 146 | 84 | 62 | 77 |
| Under 2 | 64 | 4 | 4 | 8 | 10 | 8 | 30 |
| 2 but under 3 | 134 | 4 | 18 | 40 | 22 | 27 | 23 |
| 3 but under 4 | 164 | 5 | 43 | 54 | 29 | 19 | 14 |
| 4 but under 5 | 92 | 12 | 23 | 32 | 17 | 4 | 4 |
| 5 but under 6 | 38 | 6 | 18 | 6 | 8 | 2 | 3 |
| 6 but under 7 | 14 | 2 | 2 | 4 | 1 | 2 | 3 |
| 7 and over | 8 | 2 | 2 | 2 | 2 | ..... | ..... |

[1] Exclusive of reports for 2 railways carrying freight only; for 16 which failed to furnish this information, and for 40 fast, long interurbans.

*Causes affecting the operating ratio.*—The causes which contribute to keep the operating ratio of street railways in large cities lower than in the smaller towns may be clearly discerned by a consideration of the other items in Tables 62 and 63. The difference is not due to higher fares in the great cities. It appears that the average fare collected per passenger on electric surface railways without lighting plants does not differ very materially as among the four urban groups, ranging from 4.79 cents to 4.94 cents. It is, however, largely the fact that the average passenger earnings per passenger are highest in urban centers of the second group, which makes the operating ratio for the companies of this group slightly lower than for those in the largest centers.

It is also clear that the low ratio of operating expenses in the first two groups of urban centers is not due to the low cost of operating cars. In fact, the average cost of operation per car mile for railways without lighting plants, 13.42 cents, is about one-seventh higher in centers of more than 500,000 inhabitants than in any of the other classes of urban centers; while the other three groups of urban centers differ very little among themselves in the amount of operating expenses per car mile. It is probable that the cars in the great cities average somewhat larger than those elsewhere, but they can scarcely exceed in size the cars in centers of from 100,000 to 500,000 inhabitants by as great a proportion as the expenses per car mile exceed those in the second group of centers.

One reason, perhaps the chief reason, why it costs more to operate cars in the largest cities than elsewhere

is found in the higher rates of wages. It is possible, too, that on account of the obstructions to traffic the average rate of speed of surface cars is less in large cities than elsewhere, so that a larger amount of wages must be paid to conductors and motormen for covering a given distance, even if time wages were not higher. The expense of "operating cars," which consists chiefly of the wages of conductors and motormen, amounts to 6.2 cents per car mile on electric surface railways without lighting plants in the largest centers as against 4.7 cents in centers of the smallest size. One might reasonably expect, however, that the large scale on which the street railway business is conducted in great cities would result in material economies with regard to the power plant; and as a matter of fact, as shown by Table 63, the power plant expenses per car mile in the greatest centers, though they slightly exceed those in centers of the second group, are less than in centers of from 25,000 to 100,000 inhabitants, and decidedly less than in the smallest centers.

Other causes having been excluded, the reason why the operating ratio is lower in the largest cities than elsewhere is necessarily found to lie in the great density of traffic per car mile. It will be recalled that the average number of passengers carried per car mile on electric surface railways without commercial lighting plants, in centers of more than 500,000 inhabitants, was 4.92 in 1902, while in the smallest centers it was only 3.26. The table at present under consideration shows that the operating earnings of electric surface companies without lighting plants amount to 23.76 cents per car mile in centers of more than 500,000 inhabitants, as compared with 20.64 cents in centers of the second group, and with only 16.62 cents in places of less than 25,000 inhabitants. Notwithstanding the fact that in all probability the rides taken by passengers in the greatest cities average longer than elsewhere, the cars in such cities are so much larger and so much better filled that they earn more for each mile traveled than in any of the other urban groups. The passengers who stand are those who make the greatest profit for the railway company.

The figures which show the average operating expenses per fare passenger on electric surface railways without lighting plants indicate the effects of these differences in the density of traffic and in the amount of earnings per car mile. They range from 2.76 cents for the largest centers to 3.51 cents for the smallest. A fraction of the operating expenses represents the cost of other branches of service besides passenger traffic, but in the case of electric surface companies without lighting plants this fraction is so small as to be negligible.

The fact that the operating expenses of fast, long interurban railways, despite the decidedly larger size of their cars, are not materially greater per car mile than in those of the last three urban groups is attributable partly to the high rate of speed maintained, which reduces the outlay for conductors and motormen. The power plant expenses of such railways, on the other hand, as might be expected, are heavier per car mile than for any class of urban railways. The comparatively unfavorable operating results of other interurban lines are shown primarily in their high operating expenses per car mile. These companies also have low earnings per mile of track; but against this must be set the fact that the cost of construction and equipment per mile for many of these railways is much less than in the case of the railways in large cities. The finances of fast, long interurban railways are discussed in greater detail in Part I, Chapter VII.

## VI.

### BALANCE SHEET.

*Detailed analysis for all companies.*—Table 68 presents for the United States and for each state a summary of the balance sheets of both operating and lessor street railway companies. Besides the 18 companies mentioned on page 54, as reporting no financial statistics, it was found impossible to obtain balance sheets for the Denver, Lakewood and Golden Railroad Company, which has 6 miles of track, and for one lessor company, the Pittsburg and Charleroi Street Railway Company, which has 4.6 miles of track. Moreover, the data for the balance sheets of a number of other lessor companies had to be drawn from the reports of the controlling operating companies, from various financial reports and other sources, it being impossible to obtain returns directly from the companies, as some of them have virtually ceased to keep financial accounts.

TABLE 68.—BALANCE SHEET FOR OPERATING

| | STATE OR TERRITORY. | Number of companies. | ASSETS. Total. | Cost of construction and equipment.[2] | Other permanent investments. | Cash on hand. | Bills and accounts receivable. | Supplies. | Sundries. | Profit and loss deficit for companies reporting deficit. | Net deficit for states showing deficit. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | United States..... | 967 | $2,545,132,305 | $2,167,634,077 | $152,513,997 | $28,021,853 | $22,448,700 | $10,610,928 | $152,617,703 | $11,285,047 | $1,123,330 |
| 2 | Alabama ..... | 9 | 15,451,927 | 13,999,633 | 949,116 | 78,370 | 94,304 | 38,101 | 278,765 | 13,638 | ..... |
| 3 | Arkansas ..... | 7 | 2,501,330 | 2,207,346 | 40,486 | 27,268 | 6,106 | 11,149 | 208,975 | ..... | ..... |
| 4 | California ..... | 35 | 82,602,550 | 74,624,168 | 1,805,168 | 1,186,782 | 515,963 | 832,641 | 3,632,077 | 5,751 | ..... |
| 5 | Colorado ..... | 7 | 16,820,646 | 16,174,735 | 210,062 | 149,637 | 39,298 | 115,097 | 121,850 | 9,967 | ..... |
| 6 | Connecticut ..... | 25 | 45,645,833 | 42,482,731 | 2,121,580 | 300,733 | 72,907 | 191,509 | 371,430 | 104,993 | ..... |
| 7 | Delaware..... | 3 | 5,289,910 | 5,104,476 | ..... | 71,386 | 40,860 | 47,361 | 7,977 | 17,850 | ..... |
| 8 | Florida ..... | 6 | 3,822,637 | 3,710,728 | ..... | 47,861 | 32,994 | 23,453 | 7,601 | ..... | ..... |
| 9 | Georgia..... | 10 | 27,056,898 | 26,157,673 | 134,800 | 196,523 | 212,437 | 142,571 | 212,894 | ..... | ..... |
| 10 | Illinois ..... | 56 | 284,953,125 | 225,507,387 | 40,237,103 | 1,819,913 | 1,123,128 | 899,638 | 12,432,930 | 2,933,026 | 826,030 |
| 11 | Indiana ..... | 26 | 43,454,495 | 39,420,184 | 10,435 | 371,275 | 107,448 | 170,915 | 3,241,044 | 133,194 | ..... |
| 12 | Iowa ..... | 22 | 19,977,660 | 18,035,123 | 47,704 | 243,518 | 226,522 | 80,498 | 1,214,397 | 129,898 | ..... |
| 13 | Kansas ..... | 11 | 3,318,649 | 3,089,321 | ..... | 14,622 | 2,942 | 14,379 | 190,206 | 7,179 | 6,655 |
| 14 | Kentucky ..... | 12 | 25,239,786 | 22,850,276 | 40,928 | 333,415 | 43,307 | 139,698 | 1,810,241 | 21,921 | ..... |
| 15 | Louisiana ..... | 8 | 24,084,087 | 14,282,507 | ..... | 243,853 | 97,891 | 103,969 | 9,329,908 | 25,959 | ..... |
| 16 | Maine ..... | 20 | 12,476,227 | 11,176,556 | 559,960 | 86,503 | 69,716 | 55,567 | 209,555 | 318,370 | ..... |
| 17 | Maryland ..... | 12 | 69,710,668 | 68,711,891 | 80,000 | 187,137 | 22,735 | 131,666 | 522,807 | 104,432 | ..... |
| 18 | Massachusetts..... | 92 | 121,627,650 | 109,782,044 | 212,011 | 3,302,901 | 1,887,588 | 1,451,677 | 5,085,058 | 406,371 | ..... |
| 19 | Michigan..... | 24 | 66,227,886 | 55,582,232 | 2,068,542 | 330,675 | 531,320 | 174,632 | 7,416,002 | 124,483 | ..... |
| 20 | Minnesota..... | 5 | 40,016,285 | 39,273,860 | ..... | 477,935 | 4,862 | 101,286 | 147,242 | 11,100 | ..... |
| 21 | Mississippi..... | 5 | 1,444,119 | 1,268,084 | 114,196 | 11,196 | 5,928 | 2,390 | 40,540 | 1,785 | ..... |
| 22 | Missouri ..... | 17 | 149,060,520 | 117,628,659 | 24,379,270 | 1,053,495 | 299,330 | 445,988 | 4,743,535 | 510,243 | ..... |
| 23 | Montana ..... | 5 | 3,748,096 | 3,228,532 | ..... | 46,521 | 37,782 | 22,589 | 347,107 | 65,565 | ..... |
| 24 | Nebraska ..... | 4 | 8,807,086 | 8,599,242 | ..... | 100,961 | 9,175 | 19,209 | 76,654 | 1,845 | ..... |
| 25 | New Hampshire..... | 13 | 4,435,194 | 4,118,457 | ..... | 177,579 | 108,629 | 6,686 | 20,163 | 3,780 | ..... |
| 26 | New Jersey ..... | 29 | 132,029,283 | 126,589,270 | 880,908 | 439,114 | 278,001 | 338,461 | 2,549,375 | 954,154 | 134,148 |
| 27 | New York ..... | 119 | 643,014,844 | 521,942,967 | 36,751,267 | 11,859,612 | 8,815,728 | 2,116,654 | 58,140,377 | 3,388,249 | ..... |
| 28 | North Carolina..... | 7 | 4,430,976 | 2,408,661 | 639,690 | 24,076 | 89,318 | 36,408 | 1,198,720 | 34,103 | 16,814 |
| 29 | Ohio..... | 66 | 181,414,088 | 169,058,687 | 1,147,336 | 1,705,688 | 2,320,577 | 664,396 | 6,291,536 | 225,868 | ..... |
| 30 | Oregon ..... | 6 | 6,563,793 | 6,235,570 | ..... | 89,601 | 8,680 | 89,341 | 118,864 | 21,737 | ..... |
| 31 | Pennsylvania ..... | 195 | 314,258,454 | 246,118,011 | 31,568,967 | 1,307,980 | 3,454,432 | 1,061,225 | 29,899,316 | 848,523 | ..... |
| 32 | Rhode Island..... | 7 | 24,488,395 | 23,871,751 | ..... | 38,443 | 147,373 | 160,607 | 1,589 | 268,632 | ..... |
| 33 | South Carolina ..... | 7 | 6,689,525 | 4,523,752 | 1,730,000 | 8,244 | 58,631 | 45,693 | 316,961 | 6,244 | ..... |
| 34 | Tennessee ..... | 8 | 18,142,307 | 16,931,576 | 582,015 | 64,557 | 491,804 | 62,046 | 9,187 | 1,122 | ..... |
| 35 | Texas ..... | 17 | 16,465,080 | 15,755,440 | 140,000 | 231,886 | 31,141 | 65,784 | 240,029 | 800 | ..... |
| 36 | Utah ..... | 3 | 6,224,674 | 4,314,156 | 1,682,600 | 145,123 | ..... | 50,795 | 32,000 | ..... | ..... |
| 37 | Vermont ..... | 9 | 3,203,339 | 2,850,460 | ..... | 20,477 | 10,506 | 6,041 | 292,989 | 22,866 | ..... |
| 38 | Virginia ..... | 16 | 19,773,297 | 15,414,124 | 3,284,535 | 236,557 | 598,200 | 30,732 | 151,552 | 57,597 | ..... |
| 39 | Washington ..... | 8 | 20,043,826 | 18,574,439 | 191,793 | 406,694 | 234,894 | 274,026 | 361,980 | ..... | ..... |
| 40 | West Virginia ..... | 8 | 10,005,352 | 9,039,281 | 244,819 | 106,805 | 5,976 | 4,529 | 601,492 | 2,450 | ..... |
| 41 | Wisconsin ..... | 17 | 31,334,728 | 29,359,238 | 708,756 | 225,314 | 333,118 | 338,740 | 367,214 | 2,348 | ..... |
| 42 | All other states and territories.[3] | 11 | 29,277,080 | 27,680,859 | ..... | 251,623 | 477,149 | 42,831 | 375,564 | 499,054 | 139,683 |
| 43 | Hawaii and Porto Rico. | 5 | 3,502,875 | 2,181,593 | 332,314 | 102,950 | 64,868 | 31,950 | 778,161 | 11,039 | ..... |

[1] Exclusive of reports for 20 companies which failed to furnish this information.
[2] Includes electric light plants owned by companies reporting.
[3] Includes states and territories having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico, 1.

AND LESSOR COMPANIES, BY STATES AND TERRITORIES: 1902.[1]

| LIABILITIES. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Capital stock. | Funded debt. | Bills and accounts payable. | Interest due. | Dividends due. | Sundries. | Profit and loss surplus for companies reporting surplus. | Net surplus for states showing surplus. | Cost of construction during the year.[2] | |
| $2,545,132,305 | $1,266,883,289 | $974,112,422 | $101,704,634 | $14,497,670 | $2,543,823 | $133,399,308 | $51,991,159 | $41,829,442 | $126,682,473 | 1 |
| 15,451,927 | 7,696,900 | 6,678,500 | 599,152 | 133,272 | 2,000 | 48,343 | 293,760 | 280,122 | 1,329,516 | 2 |
| 2,501,330 | 885,300 | 1,058,000 | 180,425 | 82,590 | ..... | 242,025 | 102,990 | 102,990 | 82,272 | 3 |
| 82,602,550 | 46,022,099 | 30,529,500 | 1,650,685 | 538,108 | 116,953 | 1,934,206 | 1,811,049 | 1,805,298 | 2,164,805 | 4 |
| 16,820,646 | 7,362,804 | 8,295,560 | 418,881 | 239,493 | ..... | 138,848 | 365,060 | 355,093 | 402,023 | 5 |
| 45,645,833 | 25,211,640 | 17,433,500 | 1,984,704 | 128,330 | ..... | 298,491 | 589,168 | 484,175 | 1,333,893 | 6 |
| 5,289,910 | 2,264,990 | 2,424,000 | 523,953 | 10,920 | ..... | 30,408 | 35,639 | 17,789 | 1,045,456 | 7 |
| 3,822,637 | 1,949,400 | 1,531,000 | 84,309 | 112,412 | 600 | 16,693 | 128,223 | 128,223 | 97,467 | 8 |
| 27,056,898 | 12,957,600 | 13,081,500 | 163,931 | 54,943 | ..... | 127,358 | 671,566 | 671,566 | 673,406 | 9 |
| 284,953,125 | 158,713,616 | 97,885,267 | 8,766,905 | 2,084,693 | 300,673 | 15,094,975 | 2,106,996 | ..... | 13,670,690 | 10 |
| 43,454,495 | 16,635,028 | 21,550,760 | 3,091,924 | 102,640 | 8,015 | 1,664,308 | 401,820 | 268,626 | 1,891,946 | 11 |
| 19,977,660 | 10,541,200 | 6,770,333 | 1,338,918 | 78,101 | 1,616 | 62,956 | 1,189,536 | 1,059,638 | 1,578,741 | 12 |
| 3,818,649 | 2,162,000 | 1,115,000 | 37,332 | 1,416 | ..... | 2,377 | 524 | ..... | 8[illegible],933 | 13 |
| 25,239,786 | 11,330,900 | 12,204,300 | 284,044 | 294,275 | 77,250 | 168,027 | 880,990 | 859,069 | 371,058 | 14 |
| 24,084,087 | 12,484,900 | 10,010,000 | 291,257 | 289,200 | 114,203 | 259,547 | 634,980 | 609,021 | 490,546 | 15 |
| 12,476,227 | 5,053,055 | 6,155,000 | 746,799 | 60,967 | ..... | 80,499 | 379,907 | 61,537 | 1,181,015 | 16 |
| 69,710,668 | 16,036,006 | 52,359,194 | 251,557 | 533,628 | ..... | 339,084 | 191,199 | 86,767 | 1,492,101 | 17 |
| 121,627,650 | 59,378,602 | 37,966,942 | 16,241,821 | 251,987 | 337,736 | 5,066,355 | 2,384,207 | 1,977,836 | 12,821,331 | 18 |
| 66,227,886 | 29,033,100 | 32,596,800 | 2,838,408 | 539,992 | 132,234 | 113,384 | 973,968 | 849,485 | 1,750,484 | 19 |
| 40,016,285 | 23,280,000 | 13,226,000 | 122,908 | 229,928 | 300,200 | 67,639 | 2,789,610 | 2,778,510 | 1,044,300 | 20 |
| 1,444,119 | 626,500 | 644,000 | 134,628 | 8,212 | ..... | 8,070 | 22,709 | 20,924 | 311,417 | 21 |
| 149,060,520 | 68,234,100 | 71,474,816 | 5,760,149 | 948,259 | 206,621 | 1,868,298 | 568,277 | 58,034 | 2,167,875 | 22 |
| 3,748,096 | 2,045,613 | 1,275,000 | 984 | 134,750 | ..... | 124,556 | 167,193 | 101,628 | 65,320 | 23 |
| 8,807,086 | 6,012,125 | 2,395,000 | 127,436 | ..... | 59,205 | 21,000 | 192,320 | 190,475 | 211,689 | 24 |
| 4,435,194 | 2,333,200 | 1,556,000 | 275,582 | 4,096 | ..... | 174,207 | 92,109 | 88,379 | 226,423 | 25 |
| 132,029,283 | 69,333,440 | 57,490,750 | 2,994,778 | 409,014 | 4,827 | 976,468 | 820,006 | ..... | 9,437,053 | 26 |
| 643,014,844 | 276,209,172 | 252,929,373 | 23,423,952 | 3,798,284 | 318,151 | 69,296,706 | 17,039,206 | 13,650,957 | 36,278,382 | 27 |
| 4,430,976 | 1,995,625 | 1,880,500 | 392,630 | 60,730 | ..... | 84,202 | 17,289 | ..... | 253,248 | 28 |
| 181,414,088 | 108,638,650 | 60,942,000 | 6,441,750 | 450,290 | 175,358 | 2,349,156 | 2,416,889 | 2,191,021 | 11,962,321 | 29 |
| 6,563,793 | 2,788,550 | 2,737,000 | 214,452 | 26,890 | ..... | 142,536 | 654,365 | 632,628 | 330,939 | 30 |
| 314,258,454 | 183,429,124 | 75,563,700 | 11,876,058 | 2,019,582 | 185,086 | 30,802,698 | 10,382,206 | 9,533,683 | 11,093,181 | 31 |
| 24,488,395 | 16,375,000 | 6,221,200 | 1,265,385 | 60,857 | ..... | 6,492 | 559,461 | 290,829 | 1,675,228 | 32 |
| 6,689,525 | 2,589,400 | 3,336,000 | 445,384 | 29,737 | ..... | 213,538 | 75,466 | 69,222 | 308,214 | 33 |
| 18,142,307 | 8,160,400 | 8,686,400 | 908,620 | 31,620 | ..... | 88,991 | 266,276 | 265,154 | 1,173,083 | 34 |
| 16,465,080 | 9,150,900 | 3,952,900 | 2,958,926 | 90,873 | 6,291 | 10,947 | 294,843 | 294,043 | 588,397 | 35 |
| 6,224,674 | 3,110,000 | 2,800,000 | 251,279 | ..... | ..... | ..... | 63,395 | 63,395 | 168,355 | 36 |
| 3,203,339 | 1,835,100 | 931,600 | 66,201 | 23,313 | 1,650 | 310,621 | 34,854 | 11,988 | 72,392 | 37 |
| 19,773,297 | 7,277,000 | 11,019,314 | 889,005 | 118,043 | 18,069 | 242,225 | 209,641 | 152,044 | 605,059 | 38 |
| 20,043,826 | 10,636,400 | 7,747,813 | 845,156 | 121,355 | ..... | 137,717 | 555,385 | 555,385 | 3,299,615 | 39 |
| 10,005,352 | 4,273,600 | 5,308,400 | 262,527 | 12,301 | ..... | 12,752 | 135,772 | 133,322 | 734,089 | 40 |
| 31,334,728 | 15,178,600 | 13,058,350 | 1,100,953 | 204,298 | 69,667 | 589,926 | 1,132,934 | 1,130,586 | 1,826,050 | 41 |
| 29,277,080 | 17,651,650 | 9,291,150 | 1,450,936 | 233,271 | 107,423 | 183,279 | 359,371 | ..... | 437,210 | 42 |
| 3,502,875 | 2,021,340 | 1,163,800 | 55,276 | 20,146 | 2,899 | 109,083 | 130,331 | 119,292 | 810 | 43 |

The methods of street railway companies in preparing their balance sheets are not uniform, and, although every effort has been made by the Bureau of the Census to bring the items to a comparable basis, it has been impossible in some cases to do so. Moreover, certain headings on both sides of the balance sheet represent such a variety of items that the national and state totals for these headings do not give a precise idea of the financial situation of street railways.

The total assets and liabilities, as shown in the table, have been obtained by adding all assets and liabilities reported by individual companies without setting off the profit-and-loss surplus of some of the companies against the profit-and-loss deficit of others. The aggregate surplus reported by 463 companies was $51,991,159, and the aggregate deficit reported by 225 companies was $11,285,047, while 279 companies reported neither surplus nor deficit. The latter are largely lessor companies which have no current transactions, their income being directly disbursed to their stockholders and bondholders by the operating companies. The net surplus for the United States, obtained by deducting the deficits from the gross surplus, was $40,706,112. If the deficits were similarly deducted from total assets and liabilities they would be reduced to $2,533,847,258. The table also shows for each state the net surplus or deficit obtained by combining the figures for companies showing a surplus with those for companies showing a deficit.

More than five-sixths of the reported assets of the street railway companies are placed under the head "cost of construction and equipment." It should be distinctly understood that this figure gives no indication of the actual cash which has been invested in tracks, appliances, and equipment. The Bureau of the Census undertook to secure an itemized statement of cost of construction from each company in accordance with the form prescribed by the American Street Railway Accountants' Association. Many companies furnished satisfactory returns, but many others were entirely unable to do so. The most important of the considerations that make the figures of cost in the balance sheet unsatisfactory is that a large proportion of the railway mileage, particularly of that which has had the highest valuation placed upon it, has changed hands during recent years, usually through the process of consolidation, but sometimes through reorganization after bankruptcy or otherwise. Where this has occurred, the new company has, naturally enough, treated as the "cost of construction and equipment" the amount which it has actually paid in cash or securities for the assets of the old company or companies, as "going" concerns—an amount which may be much more or much less than their original cost or the cost of duplicating them to-day. The new companies would seldom be able, even if they desired, to ascertain from the records of the old companies the amounts originally invested, either by items or as a whole. Another reason for inability to present itemized construction accounts is found in the common practice of letting contracts for the entire construction and equipment of railways at a lump sum. Such contracts are sometimes given to a construction company which is composed largely or wholly of the same men who are promoting the street railway company itself.

The item "other permanent investments" is variously interpreted by individual companies in making up their balance sheets. Some of them are disposed to put the value of their franchises under this head. The Bureau of the Census has sought to secure uniformity in the classification presented in this report, and has included under "other permanent investments" only the value of investments outside of street railways and lighting plants directly owned by the reporting companies which amounted to $152,513,997. The most important form of such investments consists of the stocks and bonds of other street railway companies, which were usually wholly or partly controlled by the companies holding such securities, but which still maintained an independent existence and made an independent report to the Bureau of the Census. To the extent that securities of reporting railway companies are held by other reporting companies there is a duplication of both assets and liabilities. In cases where an operating company has completely taken over the business of a subsidiary company, which made no separate return to the Bureau of the Census, the value of the securities held has been treated as part of the cost of construction of the parent company. The cost of electric lighting plants and of parks or other real estate used in direct connection with the street railway business is also included with "cost of construction and equipment." On the other hand, investments in other forms of real estate, in water plants, ice plants, or other industrial enterprises, or in securities of any sort, are covered by the second head of the balance sheet. In some cases the cost of such outside properties is so closely interwoven with the cost of street railways that the segregation is based on estimates rather than on precise bookkeeping accounts. Some companies reported their own stocks and bonds held in the treasury as an asset, but in making up the table such securities have uniformly been treated as though not issued and have been omitted from both sides of the balance sheet.

The sundry assets, $152,617,703, includes a variety of items. In a number of cases companies reported the value of franchises—corresponding practically to the difference between their reported cost of construction and other permanent investments on the one hand and the amount of stocks and bonds issued, on the other—as a separate item, and this has been included here rather than under "cost of construction" or "other permanent investments." It must not be supposed, however, that the total value of all street railway franchises, as distinct from their cash cost, is shown under "sundry assets." Advances made by controlling companies to their sub-

sidiary companies for improvements on their lines or other purposes are also placed under this head. It is probable, however, that a part of the item "bills and accounts receivable" also represents advances of this sort that have not been specifically indicated as such by the companies. The balance sheet totals involve duplication to the extent of such advances from one company to another; the expenditures made out of them appear, usually as "cost of construction and equipment," among the assets of the subsidiary companies, and the obligations to the controlling companies appear among their liabilities.

The items "capital stock" $1,266,883,289, and "funded debt" $974,112,422, in the balance sheet are somewhat smaller than the amounts of securities reported as issued in Table 93, which were $1,315,572,960 and $992,709,139, respectively. Some of the operating companies which reported capital stock and funded debt did not present balance sheets. Again the capital stock of some other companies was not paid up in full, only the amount paid being treated as a liability in the balance sheet. If the par value of such stock were taken, it would be necessary to offset the part not paid in by an item "sundry assets" on the assets side, representing, presumably, real or anticipated franchise value. The practice of issuing stock without full payment is most conspicuous in Pennsylvania, where the total par value of stocks issued by operating and lessor street railway companies was reported at $211,728,495, while the amount appearing in the balance sheet as paid in was $183,429,124, a difference of $28,299,371. In Philadelphia many of the lessor companies have had only a fraction of their stock paid in. Treasury stocks and bonds are excluded from liabilities as from assets.

The item "bills and accounts payable" is a large one, $101,704,634. A considerable number of companies, particularly in Massachusetts, seem to have adopted the policy of carrying permanently a heavy floating debt, the proceeds of which have been used in construction and equipment. In other cases new companies that have not yet completed their entire road, or that have only recently done so, are indebted to the contractors for nearly or quite the full cost of construction and have as yet floated no securities. There are a few cases also in which controlling companies not reporting to the Bureau of the Census have made advances to the companies which they control and which did report.

The amount of "interest due" represents in part that which has accrued but is not yet payable; in part that which is payable but for which coupons have not yet been presented; but it apparently represents chiefly interest which the companies have been unable to pay.

Under "sundry liabilities," which aggregated $133,399,308, the most important single item consists of the obligations of the subsidiary companies to controlling companies.

*Cost of construction during the year.*—An additional column on the same page with the balance sheet shows the cost of new construction and equipment charged to the capital account during the census year, as reported by street railway companies. It does not include the cost of railways under construction but not yet in operation. It has been sought also to omit expenditures which merely represented the purchase of old companies by new ones. The complications in the construction accounts of new railway companies, particularly where settlements have not yet been made with contractors, are such that the figures for cost during the year can not be altogether correct. They serve, however, to give a rough idea of the rapidity with which new construction and improvement are taking place. The total cost of construction during the year amounted to $126,682,473, or about 6 per cent of the aggregate cost of construction and equipment, as stated in the balance sheet at the end of the year.

# CHAPTER VI.

## EMPLOYEES, SALARIES, AND WAGES.

*Totals for the United States and for states.*—Table 92 shows for the United States as a whole and for each of the states the average number of salaried officials and clerks and of wage-earners of different classes, employed by street and electric railways during the census year 1902, together with the total amount of salaries and wages paid to each class. The table includes the figures for 797 of the 817 operating companies. The nonoperating lessor companies have no wage-earners; and, while they maintain a formal organization and have certain officers, these, in most cases, receive no compensation. The 20 companies that failed to report statistics of employees and wages include the 18 companies mentioned on page 54 as making no financial returns. In addition to these the Los Angeles Traction Company, with 26 miles of track and 5,040,154 passengers, and the Punxsutawney (Pa.) Street Railway Company, with 12.13 miles of track and 988,555 passengers, failed to report employees and wages. The total trackage of the companies not covered by the statistics on this subject was 417.03 miles.

In accordance with the practice adopted by the Bureau of the Census for the investigation of manufactures,[1] the average number of employees as stated in Table 92 is computed, not on the basis of the actual time the street railways were in operation, but on the assumption of continuous operation for all companies throughout the year. Thus a company operating six months and employing 30 men during that time is credited with 15 men employed for twelve months. The aim is to show the equivalent of the actual work done during the census year, or, in other words, the number of employees which would be necessary to perform that work if all of them worked the full year.

The average time of operation of the 57 companies which operated less than the full year was about six and two-thirds months. The number of employees of such companies, as calculated according to the method described, was only 2,066. If the full number had been counted, regardless of the length of their employment, it would not have increased the total number of employees of all companies combined, or the number of most of the classes of employees, by 2 per cent. In some other cases companies operated part of their trackage during only a fraction of the year; but, all things considered, the average number of employees for all railways, as calculated on the basis of an assumed full year of operation, is not materially less than the number actually employed at any given time during the year.

Table 92 shows that the average number of salaried officials and clerks employed by the street railways of the United States in 1902 was 7,128 and the average number of wage-earners of all classes 133,641, a total of 140,769 employees. The salaries paid amounted to $7,439,716 and the wages to $80,770,449, a total of $88,210,165 for salaries and wages. The wages alone, exclusive of salaries, were 56.8 per cent of the total operating expenses of the street railway companies. By far the most important groups of employees are conductors and motormen. These two classes, which are approximately equal in number and in wages received, together constitute about three-fifths of the total number of wage-earners, and their aggregate wages are equal to more than one-third of the operating expenses of street railway companies. Road and track men and mechanics are the next most important classes of employees.

*Employees, salaries, and wages of companies classified according to power.*—Table 69 shows for all companies combined and for the various groups of companies classified according to power, the number and compensation of salaried officials and clerks; the number and wages of all wage-earners and of conductors and motormen, respectively; and the relation of certain of these statistics to the length of track, to car mileage, and to the number of fare passengers carried.

[1] See Twelfth Census, Vol. VII, page cvi.

TABLE 69.—EMPLOYEES, SALARIES, AND WAGES OF COMPANIES, CLASSIFIED ACCORDING TO POWER: 1902.[1]

| | Total. | ELECTRIC, SURFACE. | | | Animal. | Steam and electric elevated. | Cable, surface, and inclined planes. | Steam, surface. |
|---|---|---|---|---|---|---|---|---|
| | | Without commercial lighting. | With commercial lighting. | Part time. | | | | |
| Number of companies | 797 | 554 | 112 | 57 | 52 | 5 | 14 | 3 |
| Salaried officials and clerks: | | | | | | | | |
| Average number | 7,128 | 5,617 | 990 | 184 | 44 | 250 | 39 | 4 |
| Per mile of track | 0.322 | 0.305 | 0.402 | 0.221 | 0.282 | 1.096 | 1.178 | 0.332 |
| Per 100,000 car miles run during the year | 0.631 | 0.596 | 1.164 | 1.413 | 0.776 | 0.299 | 1.240 | 3.698 |
| Per 100,000 fare passengers carried during the year | 0.151 | 0.140 | 0.324 | 0.488 | 0.131 | 0.079 | 0.201 | 2.354 |
| Salaries | $7,439,716 | $5,960,926 | $998,460 | $121,124 | $27,927 | $298,137 | $40,622 | $2,520 |
| Wage-earners: | | | | | | | | |
| Average number | 133,641 | 111,044 | 12,498 | 1,882 | 992 | 6,768 | 441 | 16 |
| Per mile of track | 6.031 | 6.022 | 5.080 | 2.264 | 6.354 | 29.671 | 13.319 | 1.327 |
| Per 100,000 car miles run during the year | 11.830 | 11.826 | 14.696 | 14.455 | 17.497 | 8.091 | 14.026 | 14.774 |
| Per 100,000 fare passengers carried during the year | 2.829 | 2.768 | 4.087 | 4.987 | 2.956 | 2.148 | 2.278 | 9.415 |
| Wages | $80,770,449 | $67,904,546 | $6,741,201 | $698,667 | $576,285 | $4,512,338 | $330,795 | $6,617 |
| Per mile of track | $3,645 | $3,683 | $2,740 | $841 | $3,691 | $19,782 | $9,991 | $549 |
| Per 100,000 car miles run during the year | $7,150 | $7,232 | $7,927 | $5,366 | $10,164 | $5,394 | $10,521 | $6,110 |
| Per 100,000 fare passengers carried during the year | $1,710 | $1,692 | $2,204 | $1,851 | $1,717 | $1,432 | $1,709 | $3,894 |
| Conductors: | | | | | | | | |
| Average number | 40,141 | 34,222 | 3,090 | 548 | 297 | 1,823 | 159 | 2 |
| Wages | $24,025,204 | $20,981,435 | $1,545,874 | $198,109 | $164,894 | $1,015,888 | $118,044 | $960 |
| Motormen: | | | | | | | | |
| Average number | 40,008 | 34,458 | 3,235 | 590 | 348 | 1,228 | 140 | 4 |
| Wages | $24,617,155 | $21,288,717 | $1,680,086 | $218,814 | $188,303 | $1,137,951 | $105,629 | $2,655 |

[1] Exclusive of reports for 20 companies which failed to furnish this information.

Very significant differences in these relations appear among the different classes of companies, although the differences are probably due not so much to diversity in the methods of traction as to variation in the density of traffic among the several classes. For all classes of railways combined the number of salaried employees was 0.322 per mile of track, 0.631 per 100,000 car miles run during the year, and 0.151 per 100,000 fare passengers carried during the year. The number of wage-earners was 6.031 per mile of track, 11.830 per 100,000 car miles, and 2.829 per 100,000 fare passengers. These figures exceed slightly the averages for the most important class of companies, full-time electric surface railways without commercial lighting. The annual wages paid by all companies were $3,645 per mile of single track, $7,150 per 100,000 car miles, and $1,710 per 100,000 fare passengers. As might be expected, the companies furnishing commercial lighting, part of whose employees are engaged in the lighting branch of the business, show relatively more salaried employees, wage-earners, and wages, in proportion to the car mileage and passengers, than companies without commercial lighting. The large number of wage-earners in proportion to car mileage shown for animal power railways is chiefly due to the slow speed of the cars. Elevated railways, with their extremely dense traffic, naturally show a much larger proportion of employees per mile of track than other classes of railways; but, on the other hand, the density of traffic and the high speed of elevated railways resulted in their showing a relatively small number of employees and a relatively small amount of salaries and wages in proportion to car mileage and to fare passengers carried. The number of wage-earners per 100,000 fare passengers for the cable roads was less than for any other group except the elevated roads. The inclined plane roads had 2.107, and the ordinary cable roads 2.320 wage-earners per 100,000 fare passengers.

*Employees, salaries, and wages of companies classified according to population.*—Table 70 presents for all railways classified according to population the same data as are presented in Table 69. The corresponding figures for full-time electric surface railways without commercial lighting are shown in Table 71.

TABLE 70.—EMPLOYEES, SALARIES, AND WAGES OF COMPANIES, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 797 | 65 | 46 | 83 | 312 | 53 | 238 |
| Salaried officials and clerks: | | | | | | | |
| Average number | 7,128 | 2,549 | 1,211 | 703 | 838 | 482 | 1,345 |
| Per mile of track | 0.322 | 0.514 | 0.343 | 0.248 | 0.384 | 0.174 | 0.229 |
| Per 100,000 car miles run during the year | 0.631 | 0.489 | 0.507 | 0.630 | 1.334 | 1.042 | 0.904 |
| Per 100,000 fare passengers carried during the year | 0.151 | 0.104 | 0.122 | 0.169 | 0.438 | 0.434 | 0.239 |
| Salaries | $7,439,716 | $2,720,425 | $1,465,045 | $829,372 | $686,253 | $477,601 | $1,261,020 |
| Wage-earners: | | | | | | | |
| Average number | 133,641 | 61,699 | 27,604 | 13,458 | 7,279 | 5,764 | 17,837 |
| Per mile of track | 6.031 | 12.438 | 7.811 | 4.742 | 3.333 | 2.084 | 3.035 |
| Per 100,000 car miles run during the year | 11.830 | 11.837 | 11.558 | 12.053 | 11.586 | 12.461 | 11.988 |
| Per 100,000 fare passengers carried during the year | 2.829 | 2.516 | 2.790 | 3.229 | 3.802 | 5.186 | 3.167 |
| Wages | $80,770,449 | $39,181,336 | $17,201,939 | $7,626,882 | $3,727,549 | $3,155,616 | $9,877,127 |
| Per mile of track | $3,645 | $7,899 | $4,868 | $2,688 | $1,707 | $1,141 | $1,680 |
| Per 100,000 car miles run during the year | $7,150 | $7,517 | $7,203 | $6,831 | $5,983 | $6,822 | $6,638 |
| Per 100,000 fare passengers carried during the year | $1,710 | $1,598 | $1,739 | $1,830 | $1,947 | $2,839 | $1,754 |
| Conductors: | | | | | | | |
| Average number | 40,141 | 18,897 | 8,645 | 4,063 | 1,849 | 1,351 | 5,316 |
| Wages | $24,025,204 | $11,860,269 | $5,244,982 | $2,247,928 | $911,899 | $735,181 | $3,024,995 |
| Motormen: | | | | | | | |
| Average number | 40,008 | 17,867 | 8,786 | 4,242 | 2,360 | 1,424 | 5,324 |
| Wages | $24,617,155 | $11,813,620 | $5,384,482 | $2,358,346 | $1,186,679 | $788,645 | $3,085,433 |

[1] Exclusive of reports for 20 companies which failed to furnish this information.

TABLE 71.—EMPLOYEES, SALARIES, AND WAGES OF FULL-TIME ELECTRIC SURFACE RAILWAY COMPANIES, WITHOUT COMMERCIAL LIGHTING, CLASSIFIED ACCORDING TO POPULATION: 1902.[1]

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of companies | 554 | 47 | 37 | 66 | 165 | 40 | 199 |
| Salaried officials and clerks: | | | | | | | |
| Average number | 5,617 | 2,259 | 1,026 | 457 | 438 | 356 | 1,081 |
| Per mile of track | 0.305 | 0.483 | 0.318 | 0.219 | 0.335 | 0.165 | 0.217 |
| Per 100,000 car miles run during the year | 0.598 | 0.522 | 0.469 | 0.555 | 1.141 | 0.985 | 0.830 |
| Per 100,000 fare passengers carried during the year | 0.140 | 0.107 | 0.114 | 0.150 | 0.351 | 0.432 | 0.216 |
| Salaries | $5,950,926 | $2,390,778 | $1,293,521 | $537,295 | $340,658 | $371,944 | $1,016,730 |
| Wage-earners: | | | | | | | |
| Average number | 111,044 | 53,957 | 24,649 | 8,709 | 4,008 | 4,329 | 15,392 |
| Per mile of track | 6.022 | 11.527 | 7.642 | 4.167 | 3.062 | 2.002 | 3.096 |
| Per 100,000 car miles run during the year | 11.826 | 12.461 | 11.260 | 10.577 | 10.445 | 11.980 | 11.819 |
| Per 100,000 fare passengers carried during the year | 2.768 | 2.566 | 2.747 | 2.852 | 3.210 | 5.249 | 3.082 |
| Wages | $67,904,546 | $34,094,449 | $15,325,583 | $5,256,287 | $2,163,300 | $2,432,536 | $8,632,391 |
| Per mile of track | $3,683 | $7,284 | $4,751 | $2,515 | $1,653 | $1,125 | $1,787 |
| Per 100,000 car miles run during the year | $7,232 | $7,874 | $7,001 | $6,384 | $5,637 | $6,732 | $6,628 |
| Per 100,000 fare passengers carried during the year | $1,692 | $1,621 | $1,708 | $1,721 | $1,733 | $2,949 | $1,729 |
| Conductors: | | | | | | | |
| Average number | 34,222 | 16,765 | 7,847 | 2,821 | 1,165 | 998 | 4,626 |
| Wages | $20,981,435 | $10,670,686 | $4,745,919 | $1,697,605 | $619,268 | $552,534 | $2,695,423 |
| Motormen: | | | | | | | |
| Average number | 34,458 | 16,338 | 8,060 | 2,959 | 1,421 | 1,049 | 4,631 |
| Wages | $21,288,717 | $10,509,465 | $4,903,873 | $1,790,580 | $764,662 | $583,345 | $2,736,792 |

[1] Exclusive of reports for 18 companies which failed to furnish this information.

It appears from Table 71 that the number of wage-earners per mile of track, on railways of the more typical class, is greatest in urban centers of the first group, and that the number decreases rapidly with decreasing population of urban centers. An even greater decrease is shown in wages per mile of track. The explanation is found obviously in the declining density of traffic with decreasing population. The ratio of wage-earners and wages to car miles run during the year also decreases with population, though in a much less marked degree. In explanation of the fact that the number of employees per 100,000 car miles is greater in large cities than in smaller towns, it may be said that certain classes of men, such as starters, switchmen, transfermen at junction points, and the like are not required in the smaller towns. In some small towns a single person serves both as conductor and motorman.

On the other hand, the density of traffic per car mile increases, broadly speaking, with population, and we find accordingly that the ratio of the number of employees to the number of fare passengers carried during the year decreases with increasing population. However, on account of the general tendency of the rate of wages to increase with population, there is less difference in the ratio of wages to passengers among the four urban groups than in the ratio of wage-earners to passengers. The ratio of wage-earners to passengers carried is larger in the group of fast, long interurban railways than in any of the urban groups, because of the long distance traveled by passengers.

*Relation of employees to trackage and traffic in the ten largest cities.*—Table 72 shows the number of salaried employees and the number of wage-earners on the surface railways, including electric, animal, and cable lines,[1] in the ten largest cities of the United States, together with the relation between these numbers and the traffic. It should be noted that, in some cases, the area and population of the cities as covered by this table do not correspond exactly with the area and population of the "urban centers," of which these cities are the chief part.

[1] The Brooklyn and Boston companies which operate elevated as well as surface tracks are included in the table.

TABLE 72.—WAGE-EARNERS AND SALARIED EMPLOYEES OF SURFACE RAILWAYS, IN THE TEN LARGEST CITIES: 1902.

| CITY. | Number of miles of track. | Total car mileage. | Number of fare passengers. | SALARIED OFFICIALS AND CLERKS. | | | | WAGE-EARNERS. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Number. | Per mile of track. | Per 100,000 car miles per year. | Per 100,000 fare passengers per year. | Number. | Per mile of track. | Per 100,000 car miles per year. | Per 100,000 fare passengers per year. |
| New York, N. Y | 1,103.45 | 136,179,817 | 718,278,032 | 614 | 0.556 | 0.451 | 0.085 | 20,627 | 18.693 | 15.147 | 2.872 |
| Chicago, Ill.[1] | 886.86 | 74,011,090 | 305,905,617 | 283 | 0.319 | 0.382 | 0.093 | 7,426 | 8.373 | 10.034 | 2.428 |
| Philadelphia, Pa | 517.53 | 61,521,375 | 331,304,685 | 258 | 0.499 | 0.419 | 0.078 | 6,980 | 13.487 | 11.346 | 2.107 |
| St. Louis, Mo | 360.89 | 29,602,974 | 122,063,877 | 138 | 0.382 | 0.466 | 0.113 | 2,438 | 6.756 | 8.236 | 1.997 |
| Boston, Mass | 406.13 | 45,999,999 | 222,484,811 | 450 | 1.108 | 0.978 | 0.202 | 6,769 | 16.667 | 14.715 | 3.042 |
| Baltimore, Md | 365.12 | 23,876,837 | 96,763,878 | 139 | 0.381 | 0.582 | 0.144 | 2,762 | 7.565 | 11.568 | 2.854 |
| Cleveland, Ohio | 237.04 | 18,768,515 | 81,370,202 | 95 | 0.401 | 0.506 | 0.117 | 2,104 | 8.876 | 11.210 | 2.586 |
| Buffalo, N. Y | 320.48 | 17,486,012 | 74,136,881 | 105 | 0.328 | 0.600 | 0.142 | 2,259 | 7.049 | 12.919 | 3.047 |
| San Francisco, Cal | 276.50 | 20,620,581 | 117,357,877 | 102 | 0.369 | 0.495 | 0.087 | 2,957 | 10.694 | 14.340 | 2.520 |
| Pittsburg-Allegheny, Pa | 410.01 | 33,067,964 | 161,436,822 | 155 | 0.378 | 0.469 | 0.096 | 4,016 | 9.795 | 12.145 | 2.488 |

[1] One company failed to furnish this information.

Marked differences appear among the cities in the ratio of wage-earners to track mileage. This ratio is particularly affected by the density of traffic, being high where the number of car miles operated per mile of track is great. Much less marked are the differences in the ratio of the number of wage-earners to the number of car miles run during the year. The highest ratio appears in New York, where there were 15.147 wage-earners per 100,000 car miles. Boston and San Francisco show nearly as large a proportion. The lowest ratio of wage-earners to car mileage is found in St. Louis and Chicago. As regards the relation of the number of employees to the number of fare passengers carried during the year, Buffalo and Boston present the highest ratio, both cities having more than 3 wage-earners per 100,000 passengers carried annually. The lowest ratio of wage-earners to fare passengers carried appears in St. Louis and Philadelphia.

*Method of presenting wage statistics.*—In the investigation of the wages of street railway employees the same methods have been followed that were adopted in the special investigation on employees and wages in manufacturing industries published by the Bureau of the Census in 1903.[1] The number of wage-earners whose wages fall within specified limits has been ascertained and presented.

As more fully shown in the Report on Manufactures (Vol. VII, page ccxv), great caution must be exercised in making calculations of the annual average earnings of wage-earners from the statistics of aggregate wages and average number employed. This caution applies with full force to the statistics presented in this report. The number and complexity of the other necessary inquiries in the street railway schedule precluded the use of such exhaustive methods of securing wage returns as were employed in the special investigation on employees and wages in the manufacturing industries. The companies were, therefore, asked to compute directly the number of wage-earners in the different classes receiving stated rates of pay, and the special agents of the Bureau of the Census consulted pay rolls only incidentally and by way of verification.

*Classified wages for all electric surface railways.*—Table 73 shows for all wage-earners on electric surface railways, and for the leading classes separately, the number receiving stated rates of daily wages within 25-cent limits. It shows also the percentage which the number falling within each wage group bears to the total number of wage-earners of the class, together with cumulative percentages.

[1] For fuller description of these methods see Twelfth Census Report on Employees and Wages, 1903, pages xxiv–xxviii.

TABLE 73.—DISTRIBUTION OF WAGE-EARNERS OF ALL ELECTRIC SURFACE RAILWAY COMPANIES ACCORDING TO DAILY WAGES RECEIVED: 1902.

[Each cumulative percentage shows the proportion of the total number receiving a wage as great as, or greater than, the lowest rate of the given wage group.]

| RATE PER DAY (DOLLARS). | ALL CLASSES. | | | CONDUCTORS. | | | MOTORMEN. | | | ROAD AND TRACK MEN. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number. | Percentage. | | Number. | Percentage. | | Number. | Percentage. | | Number. | Percentage. | |
| | | Of total. | Cumulative. | | Of total. | Cumulative. | | Of total. | Cumulative. | | Of total. | Cumulative. |
| Total | 94,874 | 100.0 | ..... | 31,869 | 100.0 | ..... | 32,412 | 100.0 | ..... | 9,926 | 100.0 | ..... |
| Less than 1.00 | 656 | 0.7 | 100.0 | 50 | 0.2 | 100.0 | 23 | 0.1 | 100.0 | 473 | 4.7 | 100.0 |
| 1.00 to 1.24 | 2,719 | 2.9 | 99.3 | 899 | 2.8 | 99.8 | 884 | 2.7 | 99.9 | 477 | 4.8 | 95.3 |
| 1.25 to 1.49 | 4,468 | 4.7 | 96.4 | 1,046 | 3.3 | 97.0 | 1,123 | 3.5 | 97.2 | 1,368 | 13.8 | 90.5 |
| 1.50 to 1.74 | 15,431 | 16.3 | 91.7 | 3,983 | 12.5 | 93.7 | 3,374 | 10.4 | 93.7 | 4,505 | 45.4 | 76.7 |
| 1.75 to 1.99 | 15,213 | 16.0 | 75.4 | 5,426 | 17.0 | 81.2 | 5,481 | 16.9 | 83.3 | 1,280 | 12.9 | 31.3 |
| 2.00 to 2.24 | 39,663 | 41.8 | 59.4 | 17,059 | 53.5 | 64.2 | 16,665 | 51.4 | 66.4 | 1,229 | 12.4 | 18.4 |
| 2.25 to 2.49 | 10,421 | 11.0 | 17.6 | 3,124 | 9.8 | 10.7 | 4,825 | 13.4 | 15.0 | 384 | 3.9 | 6.0 |
| 2.50 to 2.74 | 3,262 | 3.4 | 6.6 | 192 | 0.6 | 0.9 | 291 | 0.9 | 1.6 | 162 | 1.6 | 2.1 |
| 2.75 to 2.99 | 1,045 | 1.1 | 3.2 | 17 | 0.1 | 0.3 | 7 | (1) | 0.7 | 8 | 0.1 | 0.5 |
| 3.00 and over | 1,996 | 2.1 | 2.1 | 73 | 0.2 | 0.2 | 239 | 0.7 | 0.7 | 40 | 0.4 | 0.4 |

| RATE PER DAY (DOLLARS). | ENGINEERS. | | | FIREMEN. | | | MECHANICS. | | | ALL OTHER CLASSES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number. | Percentage. | | Number. | Percentage. | | Number. | Percentage. | | Number. | Percentage. | |
| | | Of total. | Cumulative. | | Of total. | Cumulative. | | Of total. | Cumulative. | | Of total. | Cumulative. |
| Total | 1,534 | 100.0 | ..... | 2,344 | 100.0 | ..... | 6,753 | 100.0 | ..... | 10,036 | 100.0 | ..... |
| Less than 1.00 | 3 | 0.2 | 100.0 | 16 | 0.7 | 100.0 | 21 | 0.3 | 100.0 | 70 | 0.7 | 100.0 |
| 1.00 to 1.24 | 5 | 0.3 | 99.8 | 76 | 3.2 | 99.3 | 83 | 1.2 | 99.7 | 295 | 2.9 | 99.3 |
| 1.25 to 1.49 | 39 | 2.5 | 99.5 | 135 | 5.8 | 96.1 | 195 | 2.9 | 98.5 | 562 | 5.6 | 96.4 |
| 1.50 to 1.74 | 104 | 6.8 | 97.0 | 469 | 20.0 | 90.3 | 896 | 13.3 | 95.6 | 2,100 | 20.9 | 90.8 |
| 1.75 to 1.99 | 89 | 5.8 | 90.2 | 637 | 27.2 | 70.3 | 1,062 | 15.7 | 82.3 | 1,223 | 12.2 | 69.9 |
| 2.00 to 2.24 | 295 | 19.2 | 84.4 | 770 | 32.8 | 43.1 | 1,707 | 25.3 | 66.6 | 1,953 | 19.5 | 57.7 |
| 2.25 to 2.49 | 187 | 12.2 | 65.2 | 171 | 7.3 | 10.3 | 1,017 | 15.1 | 41.3 | 1,213 | 12.1 | 38.2 |
| 2.50 to 2.74 | 274 | 17.9 | 53.0 | 48 | 2.1 | 3.0 | 936 | 13.9 | 26.2 | 1,359 | 13.5 | 26.1 |
| 2.75 to 2.99 | 115 | 7.5 | 35.1 | 1 | (1) | 0.9 | 427 | 6.3 | 12.3 | 470 | 4.7 | 12.6 |
| 3.00 and over | 423 | 27.6 | 27.6 | 21 | 0.9 | 0.9 | 409 | 6.0 | 6.0 | 791 | 7.9 | 7.9 |

[1] Less than one-tenth of 1 per cent.

The statistics of classified wage-earners presented in this and the following tables are confined to electric surface railways (including those with and without commercial lighting), because the occupations for other classes of railways differ so much in character as to render comparison misleading. Even of the electric surface railway companies, 54 failed to report in full regarding classified wages of their employees and have been omitted from the classified figures. The most important of the omissions are the Chicago City Railway Company, the United Railways and Electric Company of Baltimore, the Boston Elevated Railway Company, the St. Louis Transit Company, the Cleveland Electric Railway Company, the Columbus Railway Company, and the Union Railroad Company of Providence.

In the above table the heading "all other classes" includes foremen; inspectors; starters; watchmen; switchmen; hostlers, stablemen, etc.; linemen; dynamo and switchboard men; electricians; and lamp trimmers. The schedule did not call for classified wages of a few other minor groups of wage-earners, and they accordingly do not appear in the table.

The total number of wage-earners covered by Table 73 is 94,874, which is 71 per cent of the average number of wage-earners for all street and electric railways and 75.6 per cent of the average number of wage-earners on all electric surface railways.

The cumulative percentages in the table indicate the proportion of the total number of wage-earners of the different occupations who receive not less than the lowest rate defining the given wage group. Thus for all wage-earners combined the cumulative percentage opposite the group of $1.75 to $1.99 per day indicates that 75.4 per cent of the total number receive $1.75 or more per day. The "percentage of total" opposite the same wage group indicates that 16 per cent of all wage-earners received between $1.75 and $1.99, thus leaving 59.4 per cent who receive more than $1.99, which is the cumulative percentage for the next higher wage group.

Table 74 shows, for the same wage-earners who are covered by Table 73, the median groups of wages for different occupations, the percentage of the total number within each occupation who receive wage rates falling within the median group, and the percentages above and below the median rates.

By a median rate of wages is meant the rate of the employee who stands halfway between the lowest paid and the highest paid employee in the class under consideration; in other words, an absolutely precise median would be a rate such that equal numbers of employees receive wages respectively higher and lower than the rate named. For the purpose of permitting the medians to be calculated closely, the schedule called for a classification of wage-earners by their precise daily rates of pay. In tabulation, however, the employees have necessarily been grouped according to certain limits, and the median in each case accordingly appears not as a single rate, but as a group, with upper and lower limits 5 cents apart. It follows that the median group itself covers a considerable number of employees and that the number above and below the median group can not, in any case, be exactly equal.

TABLE 74.—*Median rates of wages and percentage of wage-earners receiving median rates, and rates above and below median rates, on electric surface railways: 1902.*

| CLASS. | Median rate (dollars). | PERCENTAGE OF WAGE-EARNERS RECEIVING— | | |
|---|---|---|---|---|
| | | Median rate. | Above median rate. | Below median rate. |
| All classes | 2.00 to 2.04 | 32.7 | 26.7 | 40.6 |
| Conductors | 2.00 to 2.04 | 40.6 | 23.6 | 35.8 |
| Motormen | 2.00 to 2.04 | 39.2 | 27.2 | 33.6 |
| Road and track men | 1.50 to 1.54 | 40.4 | 36.3 | 23.3 |
| Engineers | 2.50 to 2.54 | 13.6 | 39.4 | 47.0 |
| Firemen | 1.80 to 1.84 | 3.2 | 47.6 | 49.2 |
| Mechanics | 2.00 to 2.04 | 23.2 | 43.4 | 33.4 |
| All other classes | 2.00 to 2.04 | 16.9 | 40.8 | 42.3 |

Tables 73 and 74 show that there is not a wide variation in the wages of most employees on electric surface railways. Of all wage-earners on such railways, 32.7 per cent received between $2 and $2.04 per day, which is the median group, while 68.8 per cent received between $1.75 and $2.49 daily. The rate of $2 per day is more common than any other and is probably the precise median for all classes combined.

There is less variation in the wages of conductors and motormen than in the wages of all wage-earners combined. The median group for each of these classes is $2 to $2.04, and about two-fifths of each class are included in that group. More than four-fifths of all the conductors and five-sixths of all motormen received $1.75 or more per day, while less than 2 per cent of either class received $2.50 or more per day.

The median group for road and track men, who are practically all unskilled laborers, is $1.50 to $1.54, and more than two-fifths of all such employees fall within that wage group. The engineers are the best paid wage-earners, while the mechanics present the widest range of wages.

*Classified wages for electric surface railways in cities of more than 100,000 inhabitants.*—Tables 75 and 76 present in the same manner as in the preceding tables the classified wage statistics of wage-earners on electric surface railways in cities of more than 100,000 inhabitants. It will be recalled that the statistics for important companies in Chicago, Baltimore, Boston, St. Louis, Providence, Cleveland, and Columbus are omitted, but it is not probable that this omission seriously affects the distribution of the wage-earners throughout the scale.

TABLE 75.—DISTRIBUTION OF WAGE-EARNERS OF ELECTRIC SURFACE RAILWAYS IN CITIES OF 100,000 POPULATION AND OVER, ACCORDING TO DAILY WAGES RECEIVED: 1902.

[Each cumulative percentage shows the proportion of the total number receiving a wage as great as, or greater than, the lowest rate of the given wage group.]

| RATE PER DAY (DOLLARS). | ALL CLASSES. | | | CONDUCTORS. | | | MOTORMEN. | | | ROAD AND TRACK MEN. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number. | Percentage. | | Number. | Percentage. | | Number. | Percentage. | | Number. | Percentage. | |
| | | Of total. | Cumulative. | | Of total. | Cumulative. | | Of total. | Cumulative. | | Of total. | Cumulative. |
| Total | 56,399 | 100.0 | ..... | 20,376 | 100.0 | ..... | 20,063 | 100.0 | ..... | 4,694 | 100.0 | ..... |
| Less than 1.00 | 50 | 0.1 | 100.0 | ..... | ..... | ..... | ..... | ..... | ..... | 14 | 0.3 | 100.0 |
| 1.00 to 1.24 | 241 | 0.4 | 99.9 | 25 | 0.1 | 100.0 | 15 | 0.1 | 100.0 | 82 | 1.8 | 99.7 |
| 1.25 to 1.49 | 1,118 | 2.0 | 99.5 | 265 | 1.3 | 99.9 | 263 | 1.3 | 99.9 | 270 | 5.8 | 97.9 |
| 1.50 to 1.74 | 6,455 | 11.4 | 97.5 | 1,676 | 8.2 | 98.6 | 810 | 4.1 | 98.6 | 2,288 | 48.7 | 92.1 |
| 1.75 to 1.99 | 7,772 | 13.8 | 86.1 | 2,840 | 14.0 | 90.4 | 2,595 | 12.9 | 94.5 | 676 | 14.4 | 43.4 |
| 2.00 to 2.24 | 27,813 | 49.3 | 72.3 | 12,653 | 62.1 | 76.4 | 12,002 | 59.8 | 81.6 | 872 | 18.6 | 29.0 |
| 2.25 to 2.49 | 8,668 | 15.4 | 23.0 | 2,771 | 13.6 | 14.3 | 3,979 | 19.8 | 21.8 | 333 | 7.1 | 10.4 |
| 2.50 to 2.74 | 2,162 | 3.8 | 7.6 | 125 | 0.6 | 0.7 | 216 | 1.1 | 2.0 | 137 | 2.9 | 3.3 |
| 2.75 to 2.99 | 775 | 1.4 | 3.8 | ..... | ..... | 0.1 | ..... | ..... | 0.9 | 6 | 0.1 | 0.4 |
| 3.00 and over | 1,345 | 2.4 | 2.4 | 21 | 0.1 | 0.1 | 183 | 0.9 | 0.9 | 16 | 0.3 | 0.3 |

| RATE PER DAY (DOLLARS). | ENGINEERS. | | | FIREMEN. | | | MECHANICS. | | | ALL OTHER CLASSES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number. | Percentage. | | Number. | Percentage. | | Number. | Percentage. | | Number. | Percentage. | |
| | | Of total. | Cumulative. | | Of total. | Cumulative. | | Of total. | Cumulative. | | Of total. | Cumulative. |
| Total | 485 | 100.0 | ..... | 1,161 | 100.0 | ..... | 4,241 | 100.0 | ..... | 5,429 | 100.0 | ..... |
| Less than 1.00 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 0.1 | 100.0 | 33 | 0.6 | 100.0 |
| 1.00 to 1.24 | ..... | ..... | ..... | 4 | 0.4 | 100.0 | 55 | 1.3 | 99.9 | 60 | 1.1 | 99.4 |
| 1.25 to 1.49 | ..... | ..... | ..... | 10 | 0.9 | 99.6 | 96 | 2.3 | 98.6 | 214 | 3.9 | 98.3 |
| 1.50 to 1.74 | 15 | 3.4 | 100.0 | 99 | 8.5 | 98.7 | 458 | 10.7 | 96.3 | 1,114 | 20.5 | 94.4 |
| 1.75 to 1.99 | 5 | 1.1 | 96.6 | 346 | 29.8 | 90.2 | 601 | 14.2 | 85.6 | 709 | 13.1 | 73.9 |
| 2.00 to 2.24 | 42 | 9.7 | 95.5 | 490 | 42.2 | 60.4 | 828 | 19.5 | 71.4 | 926 | 17.1 | 60.8 |
| 2.25 to 2.49 | 38 | 8.7 | 85.8 | 157 | 13.5 | 18.2 | 702 | 16.5 | 51.9 | 688 | 12.7 | 43.7 |
| 2.50 to 2.74 | 63 | 14.5 | 77.1 | 42 | 3.6 | 4.7 | 764 | 18.0 | 35.4 | 815 | 15.0 | 31.0 |
| 2.75 to 2.99 | 36 | 8.3 | 62.6 | 1 | 0.1 | 1.1 | 369 | 8.7 | 17.4 | 363 | 6.7 | 16.0 |
| 3.00 and over | 236 | 54.3 | 54.3 | 12 | 1.0 | 1.0 | 370 | 8.7 | 8.7 | 507 | 9.3 | 9.3 |

TABLE 76.—*Median rates of wages and percentage of wage-earners receiving median rates, and rates above and below median rates, on electric surface railways in cities of 100,000 population and over: 1902.*

| CLASS. | Median rate (dollars). | PERCENTAGE OF WAGE-EARNERS RECEIVING— | | |
|---|---|---|---|---|
| | | Median rate. | Above median rate. | Below median rate. |
| All classes | 2.00 to 2.04 | 34.2 | 38.1 | 27.7 |
| Conductors | 2.00 to 2.04 | 41.2 | 35.2 | 23.6 |
| Motormen | 2.00 to 2.04 | 39.7 | 41.9 | 18.4 |
| Road and track men | 1.50 to 1.54 | 43.5 | 48.6 | 7.9 |
| Engineers | 3.00 to 3.04 | 15.6 | 38.7 | 45.7 |
| Firemen | 2.00 to 2.04 | 40.6 | 19.8 | 39.6 |
| Mechanics | 2.25 to 2.29 | 16.0 | 35.9 | 48.1 |
| All other classes | 2.00 to 2.04 | 14.2 | 46.6 | 39.2 |

A comparison of the figures in these tables with those for the employees of all electric surface railways combined shows, as might be expected, that there was a somewhat higher range of wages in the large cities. The difference would be still greater and more striking if the wages of employees in the cities of 100,000 and more inhabitants were compared directly with the wages in smaller places. It must be borne in mind that the statistics in Tables 73 and 74 are themselves very greatly influenced by the statistics for wage-earners in cities of more than 100,000 inhabitants. The median rates for all wage-earners combined, and severally for conductors, motormen, road and track men, and miscellaneous employees, are the same for the largest cities as for the United States as a whole, though in every case a larger proportion of the wage-earners received more than the median rate in the great cities than in the entire country. For engineers, firemen, and mechanics the median was higher in cities of more than 100,000 inhabitants than for the country as a whole.

*Classified wages for electric surface railways, by states.*—Table 98 shows by states, for electric surface railways, the number of wage-earners of all occupations, and separately those of each important occupation, whose daily wages fall within stated 25-cent limits, together with the 5-cent group within which the median wage falls in each case. The statistics for Illinois, Maryland, Massachusetts, Missouri, and Rhode Island are seriously affected by the omission of important companies.

The highest wages were found in Montana, where the median for all classes of wage-earners on electric surface railways was $3.50 to $3.54. The only other states in which the median for all wage-earners combined exceeded $2.10 per day are California, Colorado, Oregon, and Rhode Island. In eleven of the states named in the table the median group for all employees was $2 to $2.04, and these states include several of the most im-

portant. The median for all wage-earners was below $1.50 in Alabama, Arkansas, Georgia, North Carolina, and Tennessee.

The median rate of wages for conductors, which corresponded closely with that for motormen, was $2 to $2.04 in several of the leading states. Only in California, Colorado, Illinois, Michigan, Montana, Oregon, and Rhode Island was the median above this figure. In five Southern states the median for conductors was below $1.50 per day. For road and track men several states have a median of $1.50 to $1.54. Of the states in which the wages of road and track men were comparatively high, the most important are California, Colorado, Massachusetts, Minnesota, Montana, New York, Oregon, Utah, Washington, and Wisconsin. The median for this class of wage-earners was less than $1 per day in four Southern states, where negro labor is largely employed.

*Classified wages for fast interurban railways.*—The following table presents classified wage statistics for leading classes of employees on fast, long interurban railways, by states:

TABLE 77.—DISTRIBUTION OF WAGE-EARNERS OF FAST, LONG INTERURBAN RAILWAYS, ACCORDING TO DAILY WAGES RECEIVED: 1902.

| | Total. | Less than $1.00. | $1.00 to $1.24. | $1.25 to $1.49. | $1.50 to $1.74. | $1.75 to $1.99. | $2.00 to $2.24. | $2.25 to $2.49. | $2.50 to $2.74. | $2.75 to $2.99. | $3.00 and over. | Median rate (dollars). |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All classes | 6,836 | 8 | 51 | 666 | 1,567 | 1,354 | 2,491 | 370 | 178 | 43 | 108 | 1.90 to 1.94 |
| Conductors | 1,849 | ..... | 16 | 59 | 239 | 467 | 990 | 77 | ..... | 1 | ..... | 2.00 to 2.04 |
| Motormen | 1,931 | ..... | 16 | 97 | 227 | 490 | 1,007 | 93 | ..... | 1 | ..... | 2.00 to 2.04 |
| Road and track men | 1,131 | ..... | 3 | 428 | 586 | 77 | 10 | 19 | 2 | 1 | 5 | 1.50 to 1.54 |
| Engineers | 190 | ..... | ..... | 1 | 5 | 13 | 48 | 20 | 52 | 12 | 39 | 2.50 to 2.54 |
| Firemen | 208 | ..... | 1 | 8 | 92 | 63 | 39 | 3 | ..... | ..... | 2 | 1.75 to 1.79 |
| Mechanics | 535 | 7 | 4 | 19 | 128 | 94 | 161 | 66 | 81 | 9 | 16 | 2.00 to 2.04 |
| All other classes | 992 | 1 | 11 | 54 | 290 | 150 | 236 | 92 | 93 | 19 | 46 | 1.85 to 1.89 |
| All classes by states: United States | 6,836 | 8 | 51 | 666 | 1,567 | 1,354 | 2,491 | 370 | 178 | 43 | 108 | 1.90 to 1.94 |
| Illinois | 446 | ..... | ..... | 56 | 60 | 56 | 212 | 17 | 25 | 6 | 14 | 2.00 to 2.04 |
| Indiana | 901 | 2 | 4 | 162 | 267 | 248 | 165 | 27 | 18 | 1 | 7 | 1.75 to 1.79 |
| Michigan | 1,983 | 6 | 6 | 31 | 365 | 159 | 1,184 | 115 | 27 | 10 | 30 | 2.10 to 2.14 |
| New York | 671 | ..... | ..... | 170 | 139 | 140 | 128 | 42 | 27 | 4 | 21 | 1.75 to 1.79 |
| Ohio | 2,358 | ..... | 35 | 128 | 667 | 581 | 707 | 129 | 70 | 15 | 26 | 1.90 to 1.94 |
| All other states | 527 | ..... | 6 | 119 | 69 | 170 | 95 | 40 | 11 | 7 | 10 | 1.80 to 1.84 |
| Conductors by states: United States | 1,849 | ..... | 16 | 59 | 239 | 467 | 990 | 77 | ..... | 1 | ..... | 2.00 to 2.04 |
| Illinois | 139 | ..... | ..... | 25 | 12 | 7 | 95 | ..... | ..... | ..... | ..... | 2.00 to 2.04 |
| Indiana | 197 | ..... | ..... | ..... | 34 | 89 | 74 | ..... | ..... | ..... | ..... | 1.95 to 1.99 |
| Michigan | 583 | ..... | ..... | ..... | 43 | 5 | 518 | 17 | ..... | ..... | ..... | 2.10 to 2.14 |
| New York | 136 | ..... | ..... | ..... | 25 | 63 | 30 | 18 | ..... | ..... | ..... | 1.80 to 1.84 |
| Ohio | 683 | ..... | 16 | 29 | 115 | 233 | 255 | 34 | ..... | 1 | ..... | 1.90 to 1.94 |
| All other states | 111 | ..... | ..... | 5 | 10 | 70 | 18 | 8 | ..... | ..... | ..... | 1.80 to 1.84 |

It will be seen that the median wage for all employees of the fast, long interurban railways is $1.90 to $1.94, or somewhat less than the median for all classes of railways combined. The median rate for conductors and motormen on such interurban railways, however, is $2.00 to $2.04, the same as in cities of more than 100,000 inhabitants; and the general distribution of wage rates for these two classes of employees is nearly the same as in the cities of more than 100,000 inhabitants. The work of conductors and motormen on fast, long interurban railways is somewhat different in character from that of similar classes of employees in cities. On account of the high speed maintained by their cars their positions are, in some respects, more difficult and responsible. Signals and telephone dispatches directing the movements of cars must be carefully attended to. On the other hand, the freedom from crowded streets relieves the motorman, and to a less extent the conductor, on the fast interurban cars from some of the continuous strain that is felt by the city employee. Many of the employees of interurban railways live in small towns and have the benefit of the fact that the cost of living is less than in the cities. Perhaps it may be concluded that the advantages of the employees of interurban railways, as compared with those on railways in the largest cities, are about offset by the disadvantages, as is indicated by the comparative wages.

# CHAPTER VII.

## INTERURBAN RAILWAYS—ECONOMIC, FINANCIAL, AND SOCIAL FEATURES.

### I.

#### GENERAL DEVELOPMENT AND EXTENT.

*Difficulties of definition and classification.*—The conditions of business of the typical modern interurban railway differ so greatly from those of the ordinary street railway as to require special discussion. This subject has a peculiar interest because of the fact that the interurban business is of recent development, most of the faster and longer lines having been constructed within the past five years. The changes now taking place are so rapid that the census statistics covering the year ending June 30, 1902, will soon be out of date. Many new interurban railways were indeed under construction during the census year.

As already indicated (see page 5), many of the railways combine urban with interurban characteristics and traffic in such a way as to make attempts to classify them unsatisfactory. Such railways in their returns made no distinction between their strictly urban business and their interurban and suburban business, and in every case they have necessarily been treated as a unit and classed either as urban or interurban. In making this classification, therefore, it has been necessary to adopt more or less arbitrary rules. It will be recalled that the general rule followed in this respect has been to consider as interurban any railway which has more than one-half of its trackage outside the limits of incorporated municipalities; and to consider as a "fast, long" interurban any railway more than 15 miles in length, which has two-thirds or more of its trackage outside the limits of municipalities and which operates cars at a maximum speed of 20 miles or more per hour. On the basis of these rules, various companies have been classed as interurban the urban traffic of which might perhaps be found, if the information were at hand, to exceed somewhat their interurban traffic. The railways classed as "other" interurban railways are, however, much more heterogeneous in character than the "fast, long" interurbans, though even among the latter there are several which have a considerable amount of strictly urban traffic.

On account of its extensive urban traffic the Detroit United Railways Company, which operates some of the most progressive interurban lines, has been classed necessarily with the miscellaneous group rather than with the group of typical fast interurban railways.

It would be interesting, if possible, to distinguish more specific classes among the interurban railways. For instance, a distinction might be drawn between interurban lines proper and suburban lines, between companies which do a considerable proportion of their business within the limits of cities and those which do only a small proportion within such limits; and between lines which depend largely upon seasonal traffic and those which have traffic fairly well distributed throughout the year. The different railways grade into one another so imperceptibly in these respects, however, that, in the absence of more detailed information regarding the nature of the business of each company, such classification has been deemed impracticable, and it has been found necessary to group together all interurban railways except those of the special class of fast, long lines above defined.

*Statistics of trackage outside the limits of incorporated cities and towns.*—Because of the necessary imperfection of the classification of interurban lines adopted in the tables and general discussion, it is worth while, in order to get another view regarding the development of interurban railways, to consider the statistics of Table 94, which shows the amount of trackage lying outside the limits of incorporated cities and towns. This distinction is also an imperfect one, for the reasons that the limits of an incorporated place are often not identical with the limits of the area of dense population, and that there are many essentially urban communities, especially in New England, which are not incorporated. In order to avoid the second of these difficulties, some of the railway companies, in reporting their statistics of trackage, adopted more or less arbitrary limits to distinguish urban from rural districts in unincorporated places. In Massachusetts, however, where so many essentially urban communities are not politically separated from the unincorporated towns in which they lie, a large proportion of the companies were unable to make a satisfactory classification of their trackage, and the statistics of urban and nonurban trackage for the entire state have therefore been omitted in making up the totals for the country.

Despite these qualifications, however, the statistics of trackage lying outside the limits of incorporated places or other essentially urban communities, as shown in Table 94, undoubtedly show fairly well the amount of track which is extraurban, and thus throw an interest-

ing light on the extent to which suburban and interurban railways have been developed. Out of a total trackage of 20,063.82 miles exclusive of Massachusetts, 6,855.58 miles, or 34 per cent, were reported as lying outside municipal limits or the limits of urban communities as determined by certain companies. This item obviously has no direct relation to that of the total trackage of those railway companies which the Bureau of the Census has classed as interurban, although it so happens that the two are nearly the same.

An approximate indication as to the relative extent of interurban railways in the several states may also be gained from the figures for trackage without municipal limits in Table 94. For the reason just indicated, the returns from the New England states are less exact than those from the other parts of the country.

The states which have the largest amount of electric railway mileage outside of municipal limits are Connecticut, with 338.83 miles, or about three-fifths of the total trackage in this state;[1] Indiana, with 278.34 miles, or 43 per cent of the total trackage; Maine, with approximately 200 miles, or about three-fifths of the total; Massachusetts, with probably two-thirds of the total of 2,525.65 miles extraurban (exact figures not available); Michigan, with 558.62 miles, or 54.6 per cent; New Hampshire, with 85.99 miles, or 51.3 per cent; Ohio, with 1,278.55 miles, or 54.3 per cent; Pennsylvania, with 1,113.54 miles, or 44.9 per cent; and Virginia, with 197.89 miles, or 55.1 per cent. New York and Illinois have also large absolute amounts of electric railway trackage outside of municipal limits, but their urban railways are so extensive that the proportion of the total trackage which lies outside of municipal limits is comparatively small.

*Leading centers of interurban railway development.*— The conditions which favor the development of interurban railways may be considered from the standpoint of amount of traffic and from that of cost of service. From the standpoint of traffic the favoring conditions are (1) a comparatively dense population, arising from many and populous towns and villages; (2) connection with a large city, which attracts travel from the smaller towns and rural districts, and from which also summer traffic may be carried to resorts and rural districts; (3) general material prosperity and intelligence. From the standpoint of cost the important consideration is that the territory to be served shall be comparatively level, and otherwise free from physical obstacles to economical construction and operation.

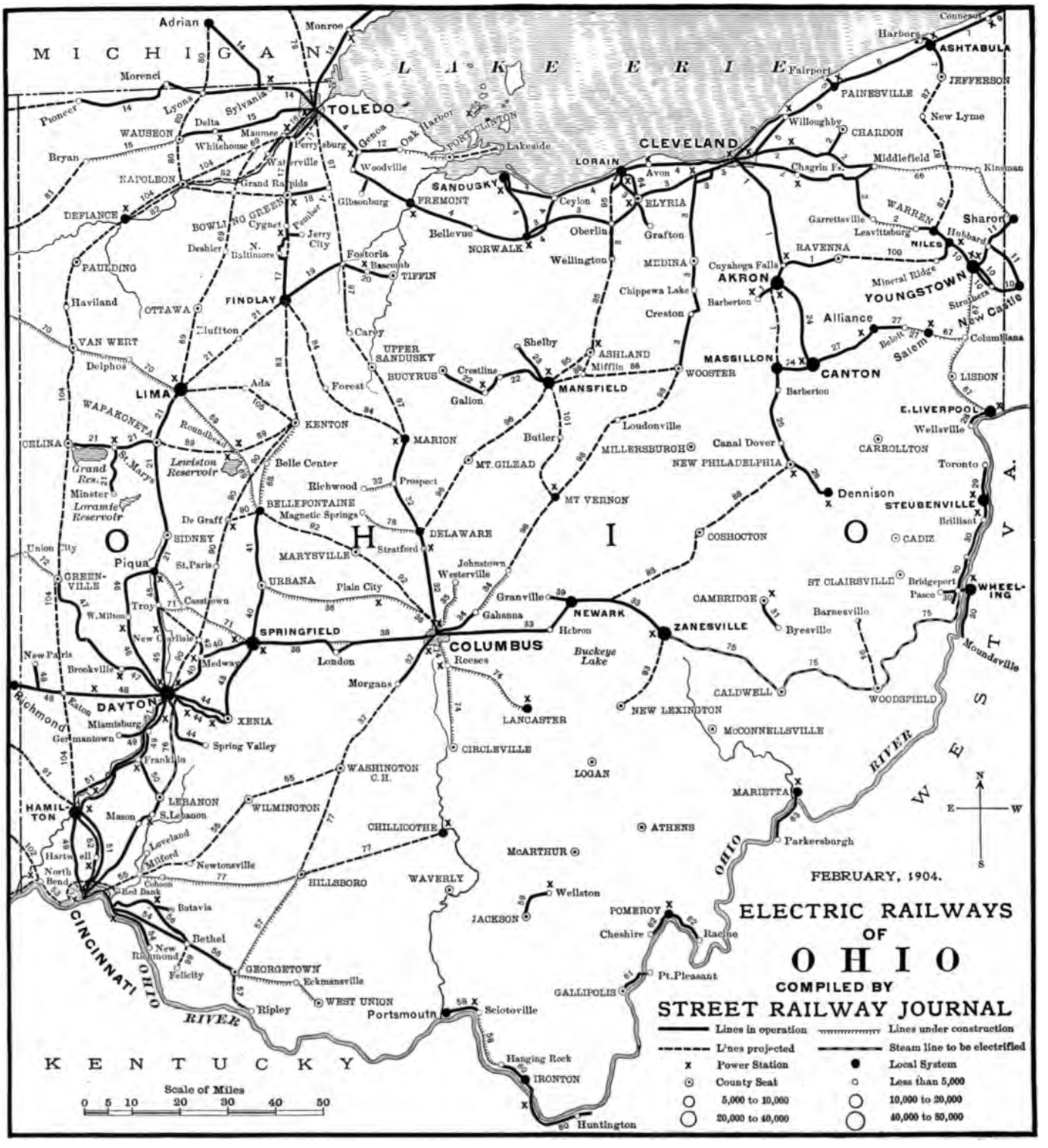
It will be found by detailed study of the existing interurban railways that in sections where they are most conspicuously developed several or all of these conditions are present.

In proportion to its area, Massachusetts has much more electric railway mileage than any other state. The 2,525.65 miles of electric road in that state represent on an average about one-third of a mile of track for each square mile of area. Except for the Boston system, nearly all the railway companies in this state are classed as interurban, according to the rules adopted by the Bureau of the Census; although several of those which are so classed, because more than half of their trackage lies in essentially rural districts, probably carry more than half of their passengers within urban communities. The cities of Massachusetts lie so near together that it was a natural process for the street railways already existing in them to reach out and become united, and then to extend to the many prosperous villages in the vicinity. The agricultural population of Massachusetts, however, is comparatively sparse and has not contributed materially to the patronage of the electric railways. It is now possible to traverse the whole length and breadth of this state on trolley cars or to go from any important town to almost any other in this way. The cars operated on the interurban lines in Massachusetts are for the most part similar in size, motive power, and speed to those used in the cities. Table 97 shows that a large majority of the interurban companies of the state reported a maximum speed outside municipal limits of not more than 15 miles per hour. There is, however, an increasing tendency in Massachusetts, as elsewhere, toward the adoption of improved methods of interurban service, and several companies now operate cars which attain a maximum speed of from 25 to 35 miles per hour.

What is true of the interurban railways in Massachusetts is largely true also of those in Connecticut and Rhode Island, and of those in the more densely populated parts of New Hampshire and Maine, particularly along the coast where summer traffic is an important element. Pennsylvania is another state in which there has been extensive interurban development, but in which many railways show no sharp distinction between urban and interurban business. The rich agricultural and manufacturing regions in the east and southeast, the anthracite mining regions in the northeast, and the densely populated valleys of the western part of the state are the chief centers of interurban railway development. A few of the lines in Pennsylvania are equipped for heavy traffic at high speed. In New York interurban electric railways are found chiefly in the upper Hudson valley, in the Mohawk valley, and in the vicinity of Buffalo. High-speed electric cars now operate from Hudson to Albany, and from Albany north through Saratoga and Glens Falls to Warrensburg, a total distance of nearly 150 miles. Plans are on foot, which will probably soon be realized, to connect the existing interurban lines running out from the large cities in the middle of this state into a chain reaching from Albany to Buffalo.

The Central states, Ohio, Michigan, Indiana, and Illinois, possess the most extensive and efficient high-

[1] The Connecticut figures, however, are not exact, as several companies failed to make the distinction.


MICHIGAN
LAKE ERIE
PENNSYLVANIA
WEST VIRGINIA
KENTUCKY
OHIO
Adrian
Monroe
Morenci
Pioneer
Lyons
Sylvania
TOLEDO
Delta
Maumee
WAUSEON
Whitehouse
Perrysburg
Genoa
Oak Harbor
PORT CLINTON
Lakeside
Bryan
Waterville
Woodville
NAPOLEON
Grand Rapids
SANDUSKY
LORAIN
CLEVELAND
Willoughby
CHARDON
Harbors
Conneaut
ASHTABULA
Fairport
PAINESVILLE
JEFFERSON
New Lyme
Middlefield
Chagrin Fs.
Kinsman
Avon
Ceylon
ELYRIA
Garrettsville
Leavittsburg
WARREN
Sharon
Hubbard
NILES
DEFIANCE
BOWLING GREEN
Cygnet
Pemberville
Jerry City
Deshler
N. Baltimore
Gibsonburg
FREMONT
Bellevue
NORWALK
Oberlin
Grafton
Wellington
MEDINA
RAVENNA
Cuyahoga Falls
AKRON
Barberton
Chippewa Lake
Creston
Mineral Ridge
YOUNGSTOWN
Struthers
New Castle
PAULDING
Fostoria
Bascomb
TIFFIN
Haviland
OTTAWA
FINDLAY
Carey
Alliance
Robbit
Salem
Columbiana
VAN WERT
Cluffton
UPPER SANDUSKY
Shelby
ASHLAND
Mifflin
MASSILLON
WOOSTER
CANTON
LISBON
Delphos
BUCYRUS
Crestline
Galion
MANSFIELD
Barberton
E. LIVERPOOL
Wellsville
LIMA
Ada
Forest
KENTON
MARION
Butler
Loudonville
MILLERSBURG
Canal Dover
CARROLLTON
WAPAKONETA
Roundhead
CELINA
Grand Res.
W. Mary's
Lewiston Reservoir
Belle Center
MT. GILEAD
NEW PHILADELPHIA
Toronto
Minster
Loramie Reservoir
Richwood
Prospect
MT VERNON
Dennison
STEUBENVILLE
Brilliant
BELLEFONTAINE
Magnetic Springs
De Graff
SIDNEY
DELAWARE
COSHOCTON
CADIZ
Union City
Piqua
Stratford
MARYSVILLE
St. Paris
Johnstown
Westerville
GREEN-VILLE
URBANA
Plain City
Granville
ST. CLAIRSVILLE
Bridgeport
Pasco
WHEELING
Troy
Casstown
W. Milton
Gahanna
NEWARK
CAMBRIDGE
Barnesville
Byesville
ZANESVILLE
New Carlisle
SPRINGFIELD
Hebron
COLUMBUS
Reeses
Buckeye Lake
New Paris
Brookville
Medway
London
Morgans
Moundsville
Richmond
Eaton
DAYTON
Miamisburg
XENIA
Germantown
Spring Valley
LANCASTER
CALDWELL
WOODSFIELD
NEW LEXINGTON
McCONNELLSVILLE
Franklin
WASHINGTON C.H.
CIRCLEVILLE
LOGAN
HAMIL-TON
LEBANON
Mason
S. Lebanon
WILMINGTON
MARIETTA
Loveland
Milford
CHILLICOTHE
ATHENS
Parkersburgh
Hartwell
North Bend
Cohoon
Red Bank
Newtonsville
McARTHUR
HILLSBORO
WAVERLY
Wellston
Batavia
JACKSON
POMEROY
Cheshire
Racine
Bethel
New Richmond
Felicity
GEORGETOWN
Eckmansville
Pt. Pleasant
GALLIPOLIS
WEST UNION
Ripley
Portsmouth
Sciotoville
Hanging Rock
IRONTON
Huntington
CINCINNATI
OHIO RIVER
Scale of Miles
0 5 10 20 30 40 50
N
E
W
S
FEBRUARY, 1904.
ELECTRIC RAILWAYS OF OHIO
COMPILED BY
STREET RAILWAY JOURNAL
Lines in operation
Lines under construction
Lines projected
Steam line to be electrified
Power Station
Local System
County Seat
Less than 5,000
5,000 to 10,000
10,000 to 20,000
20,000 to 40,000
40,000 to 80,000

speed interurban railways in the country, and illustrate most clearly the future possibilities of this method of transportation. Here coexist all the circumstances already mentioned which contribute to favor the development of such railways. In these states a clear distinction usually appears between urban and interurban lines, and, as a rule, the two classes of railways are controlled by different corporations. The fast interurban railways of these states are tending more and more to compete with steam railways for passenger traffic, even for rides of considerable length. The electric lines have been and are still being constructed with a view to ultimate combination into extensive systems. While the links have usually been built only where the local business itself was expected to prove profitable, the possibilities of through service have always been kept in mind. Already, in several places, the meeting of such shorter electric lines has made it possible to take long journeys by electric cars, in some cases without the necessity of change. Combination of detached lines into systems is being found, as was the case with steam railways, to bring many advantages to the public in the way of through cars and well-adjusted schedules, as well as to the owners in the way of economical operation.

By the courtesy of the Street Railway Journal, a map showing the electric railways of Ohio—as completed, under construction, and projected—is here presented.

The southern shore of Lake Erie is skirted by electric lines from the northeast corner of Ohio to Toledo, and a line which was under construction during the census year now connects Toledo with Detroit. The system from Cleveland to Toledo, which is now controlled by the consolidated Lake Shore Electric Railway Company, has 155 miles of main track. From Cleveland several other important electric railways radiate to the southeast, south, and southwest for distances of 50 miles or more, and it is expected that these lines will soon be extended to Pittsburg and Columbus. A group of four connecting trolley roads reaches from Toledo, through Findlay, Lima, Dayton, and Hamilton, to Cincinnati. The two longest links of this chain are controlled by a single syndicate, and it is probably only a question of time when the others will fall into the same hands.

Another important group of railways controlled by a single syndicate extends from Columbus to Springfield and Dayton, and is expected soon to reach Cincinnati, and, by connections with other roads, Toledo also. A steam railway between Wheeling, W. Va., and Zanesville, Ohio, is now being equipped for electric operation, and when this is completed a chain of electric railways will extend from Wheeling, W. Va., through Columbus and Dayton, to Indianapolis, a distance of about 365 miles.

The railways radiating from Detroit are likewise extensive and highly efficient in organization and operation. One line reaches west to Jackson, another northwest to Flint, and a third extends northeast to Port Huron, skirting Lake St. Clair. Each of these lines is more than 75 miles long, and with their interlacing branches they make an elaborate system. Another railway west from Jackson was opened in 1903, and this connects at Battle Creek with a line reaching nearly across the state. Probably within a short time connections will be made with Grand Rapids and with the two systems which extend from there to Lake Michigan.

Indiana rivals Ohio in the extent of its interurban railways. The map herewith presented, also prepared by the Street Railway Journal, shows the lines that were open, under construction, and projected at the close of 1903.

It will be seen that no less than nine interurban lines radiate from Indianapolis, and that three others are under construction. Some of these lines run 75 miles or more. Perhaps the most extensive interurban railway system in the country is that of the Union Traction Company, which extends northeast from Indianapolis to Muncie and Marion and north to Kokomo and Logansport. Additional lines connecting the present systems by direct routes with Chicago, Toledo, Cincinnati, and St. Louis are projected.

Several important electric railways also radiate from Chicago. One of these, the Aurora, Elgin and Chicago, which uses the third-rail system, is conspicuous for its heavy construction and its high speeds. Considerable progress has also been made in the construction of fast, long electric railways in eastern Wisconsin, in parts of Iowa, in eastern Missouri in the vicinity of St. Louis, in the neighborhood of Los Angeles, Cal., and elsewhere.

## II.

### TRAFFIC AND EARNINGS OF INTERURBAN RAILWAYS.

Because of differences in the length of journeys on the longer interurban railways, there is much less significance in the statistics of the number of passengers carried and the relation of that number to trackage and car mileage than in the case of urban railways. Few, if any, interurban railways have as yet adopted the practice of steam railways in recording the distances traveled by passengers. The results of operation of fast, long interurban lines can, therefore, be satisfactorily studied only through financial data. Financial statistics can not be presented for companies by name. However, averages or totals for states or for the country as a whole, such as have been presented in the tables of Part I, Chapter V, correspond so little with the actual conditions on many individual railways that it has been considered desirable to present certain financial data for specific companies, omitting the names and other means of identification. Table 78 includes 53 of the fast, long interurban lines that reported financial data. The companies with commercial lighting, and those in operation only part of the census year, are distinguished

from the other companies. It should be noted that two or three companies of the larger group did not have all of their trackage in operation during the whole of the census year, but inasmuch as the companies themselves were in operation during the entire year, they have been included in the group of full-time lines. The table shows, per mile of track, the total operating earnings, earnings from strictly railway business (i. e., from passengers, chartered cars, freight, mail, and express), passenger earnings, and combined freight, mail, and express earnings, all of these ratios being based on the total trackage operated, including that under trackage rights. Earnings from the sale of current for light and power, or from miscellaneous sources, do not appear as a separate item, but are equal to the difference between the first column and the second. The table presents likewise the total railway earnings per mile run by cars of all classes, and the total passenger earnings per passenger-car mile. It is impracticable to present the statistics of earnings from freight, mail, and express business per mile operated by cars devoted exclusively to this business, because of the character of the reports on this point, and because of the frequent practice of handling such traffic in passenger cars. Finally, the table indicates the total amount of operating expenses per car mile for all classes of cars, and the ratio of total operating expenses to total operating earnings.

TABLE 78.—GENERAL RESULTS OF OPERATION OF 53 FAST, LONG INTERURBAN RAILWAY COMPANIES: 1902.

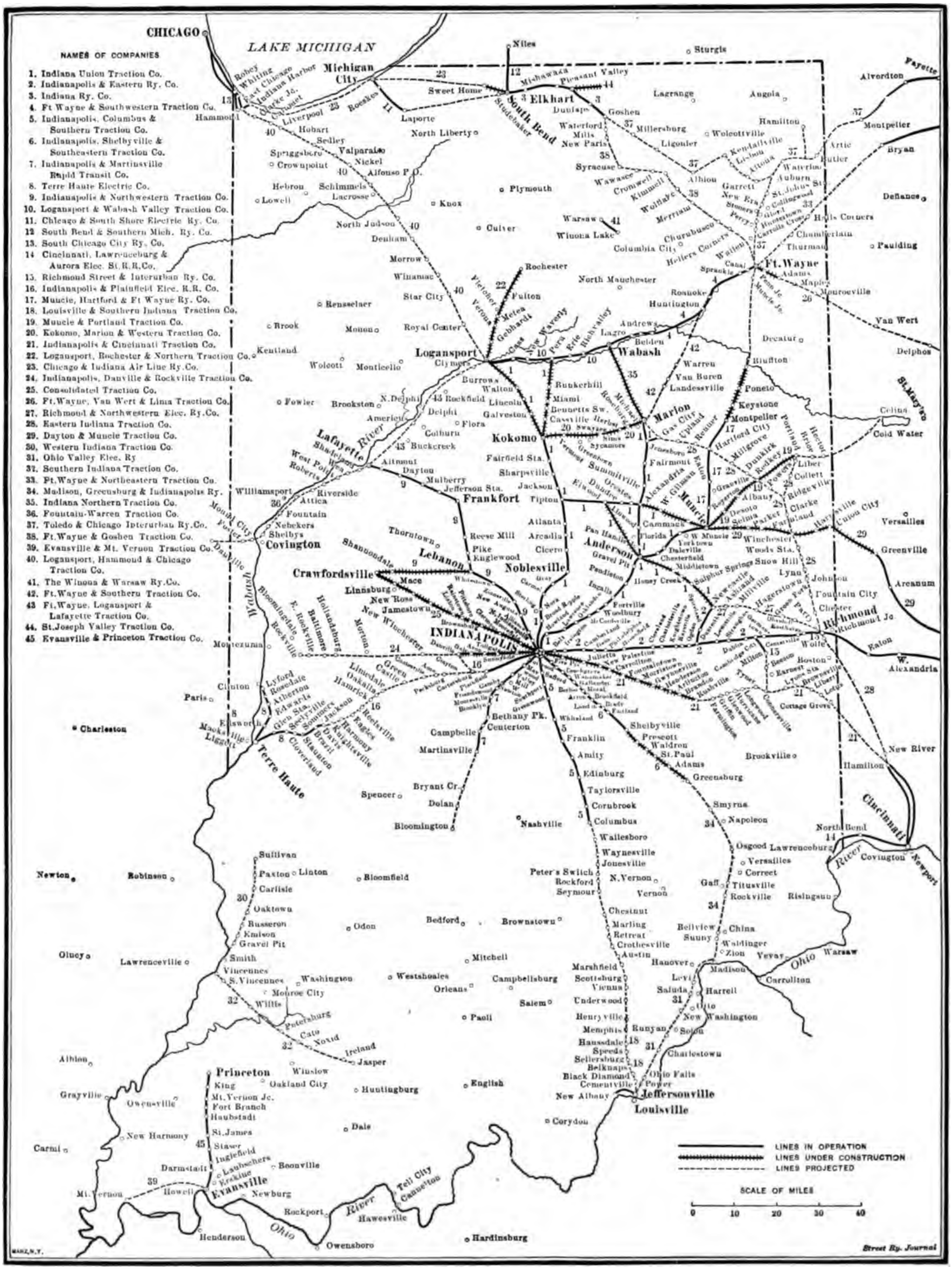
| CLASS. | EARNINGS PER MILE OF TRACK. | | | | Railway earnings proper per car mile. | Passenger earnings per passenger car mile. | Operating expenses per car mile. | Percentage of operating expenses to operating earnings. |
|---|---|---|---|---|---|---|---|---|
| | Total | From railway operation proper. | | | | | | |
| | | Total. | From passengers. | From freight, mail, and express. | | | | |
| Full-time railways without commercial lighting: | | | | | | | | |
| Average for all companies... | $3,308 | $3,217 | $3,032 | $185 | $0.201 | $0.197 | $0.124 | 59.9 |
| Individual companies... | 4,153 | 4,060 | 3,968 | 92 | .159 | .155 | .069 | 42.4 |
| | 3,566 | 3,542 | 3,537 | 5 | .165 | .165 | .095 | 57.2 |
| | 4,148 | 4,138 | 4,037 | 101 | .205 | .207 | .125 | 61.2 |
| | 3,091 | 3,091 | 2,848 | 243 | .237 | .235 | .146 | 61.7 |
| | 5,582 | 5,541 | 5,393 | 148 | .203 | .202 | .147 | 72.1 |
| | 5,754 | 5,680 | 5,580 | 100 | .220 | .220 | .119 | 53.5 |
| | 1,589 | 1,480 | 1,480 | ..... | .084 | .084 | .092 | 103.1 |
| | 3,052 | 2,895 | 2,892 | 3 | .182 | .185 | .133 | 69.3 |
| | 3,955 | 3,936 | 3,764 | 172 | .189 | .181 | .094 | 49.5 |
| | 3,054 | 3,030 | 2,575 | 455 | .223 | .197 | .125 | 55.7 |
| | 3,495 | 3,434 | 3,151 | 283 | .197 | .193 | .098 | 48.5 |
| | 2,069 | 2,069 | 1,870 | 199 | .166 | .179 | .121 | 73.2 |
| | 3,412 | 3,410 | 3,149 | 261 | .235 | .236 | .179 | 76.3 |
| | 2,664 | 2,379 | 2,354 | 25 | .193 | .209 | .137 | 63.5 |
| | 2,265 | 2,264 | 1,959 | 305 | .273 | .262 | .202 | 74.0 |
| | 3,815 | 3,730 | 3,711 | 19 | .202 | .201 | .176 | 85.0 |
| | 2,371 | 2,367 | 2,294 | 73 | .242 | .234 | .127 | 52.3 |
| | 676 | 658 | 658 | ..... | .144 | .144 | .127 | 85.5 |
| | 5,405 | 3,363 | 3,357 | 6 | .113 | .113 | .109 | 60.0 |
| | 5,384 | 5,324 | 5,250 | 74 | .192 | .196 | .100 | 51.7 |
| | 2,872 | 2,872 | 2,872 | ..... | .180 | .180 | .080 | 44.4 |
| | 3,258 | 3,207 | 3,037 | 170 | .207 | .206 | .120 | 56.9 |
| | 1,842 | 1,826 | 1,183 | 643 | .267 | .173 | .181 | 66.9 |
| | 4,624 | 4,373 | 4,111 | 262 | .243 | .228 | .144 | 56.0 |
| | 1,357 | 1,357 | 1,357 | ..... | .403 | .424 | .268 | 66.5 |
| | 3,498 | 3,498 | 3,261 | 237 | (1) | (1) | (1) | 56.1 |
| | 2,275 | 2,265 | 2,152 | 113 | .141 | .142 | .080 | 56.8 |
| | 1,743 | 1,743 | 1,697 | 46 | .190 | .185 | .201 | 105.7 |
| | 3,799 | 3,754 | 3,677 | 77 | .233 | .229 | .092 | 39.1 |
| | 1,383 | 1,358 | 892 | 466 | .239 | .208 | .148 | 61.0 |
| | 2,409 | 2,351 | 2,199 | 152 | .176 | .174 | .118 | 65.3 |
| | 2,854 | 2,827 | 2,814 | 13 | .171 | .199 | .132 | 76.3 |

| CLASS. | EARNINGS PER MILE OF TRACK. | | | | Railway earnings proper per car mile. | Passenger earnings per passenger car mile. | Operating expenses per car mile. | Percentage of operating expenses to operating earnings. |
|---|---|---|---|---|---|---|---|---|
| | Total. | From railway operation proper. | | | | | | |
| | | Total. | From passengers. | From freight, mail, and express. | | | | |
| Full-time railways without commercial lighting—Continued. | | | | | | | | |
| Average for all companies .. | $5,903 | $5,815 | $5,766 | $49 | $0.275 | $0.275 | $0.186 | 66.5 |
| Individual companies .. | 6,603 | 6,581 | 6,352 | 229 | .249 | .243 | .127 | 51.3 |
| | 4,125 | 4,089 | 3,513 | 576 | .289 | .280 | .138 | 47.4 |
| | 5,649 | 5,460 | 5,408 | 52 | .208 | .207 | .121 | 56.4 |
| | 1,625 | 1,508 | 1,504 | 4 | .133 | .133 | .168 | 116.7 |
| | 2,221 | 2,131 | 1,739 | 392 | .280 | .229 | .198 | 68.1 |
| | 1,937 | 1,900 | 1,790 | 110 | .238 | .224 | .145 | 60.0 |
| | 1,968 | 1,937 | 1,937 | ..... | .120 | .120 | .091 | 74.7 |
| Full-time railways with commercial lighting: | | | | | | | | |
| Average for all companies... | 5,815 | 4,572 | 4,416 | 156 | .206 | .203 | .153 | 58.4 |
| Individual companies... | 6,060 | 5,176 | 5,142 | 34 | .189 | .188 | .123 | 55.5 |
| | 4,752 | 3,673 | 2,778 | 895 | .242 | .201 | .246 | 74.1 |
| | 9,900 | 6,828 | 6,753 | 75 | .259 | .261 | .261 | 69.6 |
| | 5,463 | 4,689 | 4,581 | 108 | .178 | .180 | .100 | 48.3 |
| | 3,827 | 2,692 | 2,681 | 11 | .257 | .256 | .197 | 54.1 |
| Part-time railways: | | | | | | | | |
| Average for all companies... | 2,016 | 1,936 | 1,864 | 72 | .212 | .218 | .137 | 61.9 |
| Individual companies... | 4,032 | 3,881 | 3,838 | 43 | .214 | .217 | .139 | 62.6 |
| | 2,084 | 2,024 | 1,989 | 35 | .203 | .199 | .115 | 55.3 |
| | 1,207 | 1,204 | 1,157 | 47 | .190 | .210 | .111 | 58.4 |
| | 914 | 912 | 902 | 10 | .295 | .292 | .286 | 96.7 |
| | 1,931 | 1,921 | 1,757 | 164 | .160 | .161 | .101 | 63.1 |
| | 935 | 735 | 735 | ..... | .235 | .235 | .197 | 66.0 |
| | 1,257 | 1,204 | 1,204 | ..... | .281 | .281 | .097 | 33.2 |
| | 2,731 | 2,557 | 2,365 | 192 | .265 | .245 | .195 | 68.7 |

[1] Car mileage not reported.

*Earnings per mile of track.*—Confining attention to full-time companies without commercial lighting plants, the average earnings from all sources per mile of track for all companies are $3,308, of which $3,032 is derived from passengers and $185 from freight, mail, and express. Of the 40 companies in this class 9 earn less than $2,000 per mile of track. At least 6 of these, however, did not have all their trackage in operation throughout the whole census year. Nine companies earned from $2,000 to $3,000 per mile of track; 11, the largest group, from $3,000 to $4,000; 4 from $4,000 to $5,000; and 7 more than $5,000 per mile. While some of the companies with high earnings per mile of track derived a considerable part of their revenue from passengers carried within the limits of cities, others that earned $4,000 or more per mile derived much the greater part of their earnings from strictly interurban business.

Nearly all of the earnings of the first group of railways shown in the table are from strictly railway business. The 5 companies that operate lighting plants, the second group in the table, have a considerable revenue from that branch of the business, but their railway earnings proper are larger per mile of




ELECTRIC RAILWAYS OF INDIANA.

track than those of most of the companies without lighting plants. Two or three of the 5 companies do an important urban as well as interurban business. The earnings per mile of track of companies operating during only part of the year vary greatly because of the difference in the length of time that they were operated.

The freight, mail, and express business of the interurban railways shows such widely differing stages of development that an average for all companies is not significant. Eight of the 53 companies shown in the table have earnings from these sources equal to more than one-tenth of their earnings from passengers, and of these 8 companies 3 have freight, mail, and express earnings equal to more than one-third of their revenue from passengers. All of the 4 companies in Michigan operating the entire year do an important freight and express business, and the same is true of the interurban lines of the Detroit United Railway Company, which is not included in the table. Among other companies whose freight and express business is important may be mentioned the Indianapolis and Eastern Railway Company, the Eastern Ohio Traction Company (Cleveland to Garrettsville, etc.), the Cleveland, Painesville and Eastern Railroad Company, the Dayton, Springfield and Urbana Electric Railway Company, the Toledo and Western Railway Company (Toledo to Adrian, Mich.), the Mahoning Valley Railway Company (Youngstown, Ohio, to Newcastle, Pa.), the Los Angeles Pacific Railroad Company, the Erie Traction Company (Erie to Cambridge Springs, Pa.), and the Albany and Hudson Railway and Power Company.

*Earnings per car mile.*—The ratio of earnings to car mileage on interurban railways is much more nearly uniform than the ratio of earnings to trackage. Moreover, this figure furnishes a basis for comparison of the financial operations of part-time and full-time roads which the ratio of earnings to trackage did not permit. The total railway earnings of the three groups of interurban companies in Table 78 are equal to 20.6 cents per car mile and the passenger earnings are equal to 20.3 cents per car mile. No great difference appears in these ratios as among the three groups of companies. Of the 52 companies for which car mileage was reported, 6 have railway earnings of less than 15 cents per car mile, 16 have earnings of from 15 to 20 cents, 19 from 20 to 25 cents, 10 from 25 to 30 cents, and 1 more than 40 cents per car mile.

*Operating expenses.*—The operating expenses per car mile for full-time interurban railways without commercial lighting average 12.4 cents, and those for companies operating only part of the year, most of which do not furnish commercial lighting, 13.7 cents. Some of the companies report remarkably low ratios of operating expenses, 10 showing less than 10 cents per car mile. Only 9 of the full-time companies without commercial lighting have operating expenses exceeding 15 cents per car mile, and several of these cases are easily explained by temporary or exceptional causes. The total operating expenses of companies which do an extensive lighting business are naturally relatively high per car mile.

The average ratio of operating expenses to operating earnings for the 53 fast, long interurban railways in Table 78 is 59.8 per cent. For full-time companies without commercial lighting the ratio of expenses to earnings is 59.9 per cent. Much the greater proportion of the companies have operating ratios between 50 and 70 per cent, but 8 report a ratio of less than 50 per cent and 13 a ratio exceeding 70 per cent. The financial results of interurban railway business must be considered on the whole very satisfactory.

*Growth of traffic.*—Several interurban companies, in response to the request of the Bureau of the Census for additional information, presented statistical comparisons showing the growth of their earnings. None of the companies has been in operation more than a few years, but in several instances a marked increase of earnings has taken place within that time. Thus the Eastern Ohio Traction Company states that its passenger earnings were 24 per cent greater in 1902 than in 1901. The Detroit, Ypsilanti, Ann Arbor and Jackson Railway in 1901 had, with the same trackage, about 20 per cent more passenger earnings in 1901 than in 1898. Much more remarkable has been the growth of freight traffic on some of the lines. The report of the railway last mentioned shows that freight earnings are increasing by from 20 to 30 per cent each year. The Schenectady Railway (Schenectady to Albany, N. Y.), during the twelve months from July 1, 1902, to June 30, 1903, earned about three and one-half times as much from freight and express as during the six months immediately preceding.

*Relation between earnings and population served by fast, long interurban railways.*—Much interest attaches to the question of the relation between the amount of earnings on interurban railways and the population served. Only rough approximations can be made on this subject. Conditions peculiar to each railway make it impossible to draw from its experiences definite conclusions that can be regarded as typical. The greatest difficulty is found in determining the extent of the population which is to be considered as tributary to a given railway.

For example, where an interurban railway connects a group of small towns with a large city, the resident population of the small towns usually furnishes much more traffic in the aggregate than the resident population of the city, although the inhabitants of the city may greatly outnumber those of all the other towns. The latter contributes some traffic, but it would be obviously improper to combine the population of the large city with that of the small towns in calculating the per capita traffic. Where two large cities are connected by an electric railway, which also serves inter-

mediate towns, the traffic furnished by the cities is likely to be somewhat greater than where only a single city is served. The amount of traffic will depend largely upon the distance between the two cities and the comparative speed and charges of the electric and steam service. But even where two cities are connected in this manner it would likewise be improper to count the population of the cities in the same way as that of the smaller towns in determining the relation of traffic to population. In other cases interurban railways connect only towns of medium or small size. There is ordinarily less to attract travel on such a railway, and the ratio between earnings and population served may be expected to be lower than the ratio in the case of railways connecting with large cities.

It is quite impossible from the available statistics of population to determine the number of the inhabitants of rural communities who can be considered as tributary to an interurban railway. Ordinarily the township, which is the unit for reporting the population, is of such large area that only a small portion of its inhabitants have access to a railway running through it. In some cases, to be sure, interurban lines draw a considerable proportion of their traffic from the farming class. Usually, however, much the greater part of the traffic is furnished by the inhabitants of towns.

Table 79 shows the relation between operating earnings and population for 16 selected fast, long interurban railways. The population is that of the census of 1900, while the operating earnings are for the census year 1902. The population taken as a basis in each case includes only incorporated places, and does not include large cities serving as termini, which are for convenience designated as "city termini." Of the railways under consideration 8 are in Ohio, 5 in Michigan, and 1 each in Indiana, Illinois, and Missouri.

TABLE 79.—*Relation of trackage and operating earnings to population served in the case of selected fast, long interurban railways: 1902.*

| NUMBER OF COMPANY. | Population of incorporated places, not including city termini, per mile of track operated. | Annual operating earnings per inhabitant served. | NUMBER OF COMPANY. | Population of incorporated places, not including city termini, per mile of track operated. | Annual operating earnings per inhabitant served. |
|---|---|---|---|---|---|
| 1 | 493 | $6.61 | 9 | 816 | $4.29 |
| 2 | 259 | [1] 11.80 | 10 | 181 | 9.66 |
| 3 | 558 | 6.39 | 11 | 350 | 6.89 |
| 4 | 278 | 14.20 | 12 | 557 | 9.66 |
| 5 | 494 | [2] 7.74 | 13 | 1,009 | 3.98 |
| 6 | 570 | 6.13 | 14 | 1,618 | 3.49 |
| 7 | 230 | 14.83 | 15 | 2,044 | 2.89 |
| 8 | 270 | 3.96 | 16 | 696 | 1.73 |

[1] Freight earnings more than one-seventh of total.
[2] Operates a lighting plant.

The first 10 railways referred to in the table all connect towns of small or medium size with a single large city, Dayton, Ohio, with a population of 85,333, being the smallest "city terminus" in the group. Number 1 serves 8 towns of between 1,000 and 20,000 inhabitants, with a total population of nearly 40,000. The largest town served has also another important interurban railway connection. Number 2 serves 5 small towns and 1 of about 20,000 inhabitants, situated at one end of the line. The total population of these towns is between 30,000 and 40,000. Number 3 connects 1 large town and 4 towns of less than 3,000 inhabitants each with a city, the total population of the 5 towns being about 35,000. Number 4 connects 4 small towns with a large city, the aggregate population of these towns being less than 8,000. Presumably, a considerable amount of traffic is in this last case furnished by rural communities, while some may possibly come from beyond the terminus of the railway. Number 5 has as one of its termini a town of more than 15,000 people, and serves 4 intermediate places of smaller size, the total population of these 5 towns being between 25,000 and 30,000. Number 6 serves 3 towns of considerable size and 5 smaller towns, their combined population being more than 50,000. The town population directly served by number 7 is very small, and it probably carries a considerable number of passengers to a connection with the steam railroad at its terminus. Number 8 connects 3 small towns with a large city. Number 9 serves 1 city of more than 30,000 people and 2 or 3 smaller towns, the total population served being more than 40,000; the larger town mentioned has also electric railway connections in other directions. Number 10 serves less than 10,000 people directly, these being mostly confined to the town at its terminus. Presumably, a considerable amount of traffic is due to steam railroad connections.

Numbers 11 and 12 each connect 2 large cities at considerable distances from one another. Probably, however, much the greater part of the traffic is furnished by the intermediate towns, which, in the one case have an aggregate population of more than 40,000 and in the other case of more than 60,000.

Numbers 13, 14, and 15 do not reach large cities, but in each case have as their termini medium-sized towns with population ranging from 10,000 to 45,000. They are all lines of considerable length and serve 2 or more minor towns in addition to their termini. Number 16 connects 4 towns of between 5,000 and 25,000 population, and also serves several smaller places. It will be observed that, as might be expected, the ratio of traffic to population is lower in the case of the last 4 railways than in most of the other cases. The "city terminus" has a strong tendency to attract travel on the part of the inhabitants of the neighboring smaller towns.

Most of the railways covered by Table 79 are highly prosperous. More than half of them report a ratio of operating expenses to earnings below 60 per cent, and only 3 have a ratio exceeding 75 per cent.

## III.

### CHARACTERISTICS AND SIGNIFICANCE OF INTERURBAN SERVICE.

In discussing the broader questions regarding the social and economic significance of interurban railway traffic, it is difficult to avoid entrance into the domain of prophecy. Some of the electric railways have already made such progress in methods that certain prophets look forward to the complete superseding of steam traction by electric traction. However this may be, it is evident that, even if the electric railways confine themselves to the methods already widely prevalent, they are bound to become a social and economic factor of enormous importance. Remarkable benefits have already been realized from the existing interurban lines, and the extension of such railways to a large proportion of our more prosperous communities seems but a matter of a short time.

As a means of studying more specifically the nature of the traffic of modern fast interurban railways, the Bureau of the Census addressed a special schedule of inquiries to a number of typical lines, most, but not all, of which are of the class designated as fast, long lines. Below is presented a tabulation, for individual companies, of the replies received, so far as they relate to traffic. Several of the railways enumerated are thoroughly typical modern interurban railways. The blanks represent in most cases inability or failure of the company to furnish the desired information.

*Traffic of selected*

[Prepared from replies to a

| | STATE. | Name of railway. | Length of track (miles). | AVERAGE SPEED OF CARS IN MILES PER HOUR. | | Frequency of passenger cars on main lines. | Estimated average distance traveled by each passenger, in miles. | Estimated average fare per mile (cents). |
|---|---|---|---|---|---|---|---|---|
| | | | | Entire trip. | Outside of town limits. | | | |
| 1 | New York | Schenectady Railway Company | 36.12 | 15 to 16 | 20 | 1 hour | | |
| 2 | Pennsylvania | Lehigh Traction Company | 20.09 | 12 | | 30 minutes | | |
| 3 | | Wilkesbarre and Hazelton Railroad Company | 28.00 | 30 | | 1 hour | | 2.25 |
| 4 | Ohio | Youngstown-Sharon Railway and Light Company | 42.25 | 16 to 20 | 20 to 25 | 30 minutes and 1 hour. | | 0.8–1.04 |
| 5 | | Stark Electric Railroad Company | 26.97 | 23 | | 1 hour | | |
| 6 | | Western Ohio Railway Company | 77.97 | 20 | | 1 hour | | |
| 7 | | Cincinnati, Dayton and Toledo Traction Company | 78.35 | | | 30 minutes | | |
| 8 | | Columbus, Buckeye Lake and Newark Traction Company | 43.50 | | | 1 hour | 16 | 1.4 |
| 9 | | Eastern Ohio Traction Company | 90.00 | 20 | | 1 hour | 10 | 2 |
| 10 | | Dayton and Xenia Transit Company | 50.12 | 16 | | 45 minutes | | 1.33 |
| 11 | Michigan | Detroit, Ypsilanti, Ann Arbor and Jackson Railway | 91.42 | 20 | | 30 minutes and 1 hour. | 13 | 1.125 |
| 12 | | Detroit, Monroe and Toledo Railway Company (Toledo and Monroe). | 29.92 | 21 | | 1 hour | | |
| 13 | Indiana | Indianapolis, Columbus and Southern Railroad Company (Indianapolis, Greenwood and Franklin). | 19.00 | 18 | 22 | 1 hour | 11 | 1.4 |
| 14 | | Richmond Street and Interurban Railway Company | 30.50 | 18 to 24 | | 1 hour | | 1.5 |
| 15 | | Indianapolis and Eastern Railway Company | 18.04 | 20 | | 1 hour | | |
| 16 | Illinois | Peoria and Pekin Terminal Railway Company | 8.68 | 15 | | 20 to 30 minutes | 5 | |
| 17 | | Chicago and Joliet Electric Railway Company | 62.89 | 20 | | 30 minutes and 1 hour. | | 1.5 |
| 18 | Iowa | Waterloo and Cedar Falls Rapid Transit Company | 40.00 | 12 to 20 | | 1 hour | | |

[1] Included in preceding.

[2] Summer resort increases travel 50 per cent during the season.

*interurban railways.*

special schedule of inquiries.]

| ESTIMATED PROPORTION OF PASSENGERS WHO ARE CARRIED— | | | Percentage of total steam and electric traffic carried by electric lines. | Effect on local business of steam railways. | Proportion of earnings from freight, mail, and express to total revenue, approximate (percentage). | Character of freight and express carried. | Remarks regarding freight and express. | |
|---|---|---|---|---|---|---|---|---|
| Wholly within towns (percentage). | Between towns (percentage). | Between town and country (percentage). | | | | | | |
| 75 | 25 | (1) | 95 | Decreased 80 per cent; fares unchanged. | 4.5 | Groceries and provisions, small farm products, dry goods. | Will handle greater part of high-class goods ultimately. | 1 |
| Few. | Nearly all. | Few. | 99 | Practically all taken away; trains taken off. | 1 | Packages | Mining region. | 2 |
| | 97.5 | 2.5 | 80 to 90 | Reduced greatly; trains taken off. | | | | 3 |
| 10 | 75 | 15 | | Round-trip fares reduced | | Just beginning | Is creating much new business; expects much express. | 4 |
| | Nearly all. | | 75 to 90 | Local business reduced, but long-distance travel created. | | Undeveloped | | 5 |
| 0.5 | 94.5 | 5 | Much greater part | Reduced slightly | | Fruits, produce, groceries | 98 per cent is between towns | 6 |
| 30 | 65 | 5 | | Little effect | | Mostly merchandise in packages. | Express handled by separate company; heavy freight not sought. | 7 |
| | [2]85 | 15 | 90 | Much reduced | 6 | Express | | 8 |
| | | | | No direct competition | 25 | General | Handles cars from steam roads | 9 |
| | | | 95 | | | Groceries, beer, fruits, merchandise. | | 10 |
| 15 | 75 | 10 | 65 | Little reduction | 9 | Farm produce, groceries, dry goods, light merchandise. | | 11 |
| | | | | | 8 | | | 12 |
| 3 | 77 | 20 | 98 | Reduced | | Milk; beginning only | | 13 |
| 40 | 40 | 20 | Practically all | | | | | 14 |
| | | | | | | | | 15 |
| 5 | 90 | 5 | 80 | Steam fares reduced one-half | | | Handled by steam locomotives. | 16 |
| 20 | 70 | 10 | 60, of through business. | Affected smaller stations only | | Produce, groceries, milk, beer. | | 17 |
| 30 | 60 | 10 | 95 | No effect | 25 | General; rapidly growing | Interchange with steam roads; uses steam in part. | 18 |

The electric interurban railways possess, in contrast with steam railroads, several peculiar characteristics which directly affect their methods of operation, and these in turn determine the amount and character of their traffic.

*Small units and frequent service.*—The greatest difference between the electric and the steam railway lies in the fact that the former operates cars each of which has its own motors, supplied with energy from a single distant source, while the cars of the latter are moved by a separate locomotive which generates its own power. The economy of large scale power production is secured by the electric railway through the construction of a central station. It is, therefore, practically as cheap to run electric cars separately as to run them in trains. On the other hand, the cost of operating a steam railway is greatly reduced by increasing the size of engines and the length of trains. Steam operation, therefore, tends to infrequent service, while electric operation lends itself to frequent service.

The preceding tabular presentation of replies shows that in the Middle West, where the interurban railways usually connect rather small and quite widely separated towns with one another or with larger cities, the passenger cars run, as a rule, once each hour, though sometimes more frequently. The steam trains which actually stop at these minor towns number ordinarily not more than four or five each way per day. The very smallest country villages on the steam roads often have still less frequent train service. Where, as in the more densely populated parts of Massachusetts, the urban communities connected by electric lines are larger and nearer together, the frequency of the electric service is often much greater than that in the Middle West, and such frequency of service means great convenience and saving of time to patrons.

*Frequency of stops.*—The fact that single units of comparatively light weight are operated upon electric railways permits stops to be made much more quickly than with heavy steam trains, and likewise permits a much more rapid acceleration after the start. Acceleration is also favored by the nature of electric power and motors. It is, therefore, possible for interurban cars to make comparatively frequent stops while maintaining a high average speed. This fact also tends greatly to increase patronage.

*Cost of operation and fares lower than for steam railways.*—For reasons which need not be taken up here electric traction is cheaper for short distances and light traffic than steam traction. Interurban electric railways have, therefore, found it possible to charge fares materially below those of the steam railways, and as a result have not merely taken away traffic from the latter, but have developed traffic which otherwise would not have existed at all. The relation between low fares and low operating expenses is reciprocal. Low operating costs make low fares possible, and on the other hand the reduction of charges stimulates traffic and thereby reduces operating costs and still more fixed charges per passenger.

The replies of interurban railways above presented indicate, in some cases by rather rough estimates, the average rate of fare per mile on typical interurban lines. Most of these lines approximate the steam railways closely in the quality and speed of their local service. The fare is usually from 1¼ to 2 cents per mile, 1½ cents representing a rough average. Frequently some reduction is made for return trips. In most sections of the country the local fares of steam railways for one-way tickets are about 3 cents per mile. On many electric railways, which connect closely neighboring cities and towns and which have dense traffic, the charges per mile are materially less than those above indicated. This is true, for instance, in Massachusetts.

A prominent steam railway company, operating in several states, submitted to the Bureau of the Census a detailed list of all towns connected both by its lines and by electric railways, with the respective rates of fare in each case. The fares of the steam road for one-way tickets were from one and one-half to five times as much as those of the parallel electric roads. Broadly speaking, the steam railway fares averaged about double those of the electric lines.

The following is a specific comparison of some of the rates of fare on steam and fast electric railways in Ohio:

*Comparative fares of steam and electric railways in Ohio.*

| JOURNEY. | DISTANCE (MILES). | | FARE, ONE WAY. | | FARE, ROUND TRIP. | |
|---|---|---|---|---|---|---|
| | Steam. | Electric. | Steam. | Electric. | Steam. | Electric. |
| Cleveland to Ravenna | 57 | 45 | $1.15 | $0.70 | $2.07 | $1.10 |
| Cleveland to Akron | 38 | 36 | 1.00 | .60 | 1.80 | 1.00 |
| Canton to Akron | 23 | 21 | .70 | .35 | .83 | .65 |
| Massillon to Uhrichsville | 35 | 37 | 1.05 | .55 | 1.89 | 1.00 |
| Cleveland to Creston | 49 | 49 | 1.50 | .85 | 2.70 | 1.45 |
| Columbus to Newark | 33 | 37 | 1.00 | .60 | 1.80 | 1.00 |
| Newcastle, Pa., to Youngstown, Ohio | 21 | 18 | .65 | .30 | 1.17 | .60 |

*Operation in the streets of towns and cities.*—By running upon the public streets when they enter a city or town, and by making frequent stops within municipal limits, electric railways become usually much more accessible to passengers than steam railroads, which, as a rule, have only a single station in a town, and that, perhaps, at some distance from its business center. The electric railway is also able to create in addition to its interurban traffic a considerable amount of new traffic within the limits of towns. On the other hand the electric car suffers a considerable disadvantage in the eyes of through passengers, because of the necessity of reducing its speed while passing through municipalities. This matter is less serious in the small towns, but in the larger cities the speed of cars is so much reduced, and the distances to be covered at a slow pace are so great, that the duration of the journey of many inter-

urban passengers is materially augmented. Ultimately many interurban railways will probably secure entrance into cities on private rights of way, or on elevated or underground tracks, but the heavy expense involved will delay the adoption of this policy.

*Other advantages of electric lines for interurban service.*—Other peculiarities of interurban railway service, although they are of less importance, may be mentioned. One of these is the fact that the electric car can surmount grades and pass curves more readily than a steam train. This enables electric railways often to take shorter routes than the steam roads, and sometimes to reach villages or rich rural sections not considered accessible by the steam railways. Again electric railways, being capable of earning a profit from purely local business, are often built to connect towns directly, where it was formerly possible to travel from one to the other only by a roundabout journey and a change of cars. The freedom from smoke is a material advantage of electric over steam railways. This advantage is particularly appreciated in the summer, when it permits the electric lines to operate open or semiconvertible cars, giving the patrons the pleasure of a fast open-air ride.

*Nature and social advantages of passenger traffic.*—The importance of the advantages possessed by electric railways for local traffic is sufficiently shown by the extent of their business and by the financial results, which have already been discussed. The interurban railways have greatly increased the aggregate amount of travel in those sections where they exist, the number of passengers carried by the electric lines being usually materially greater than the number formerly carried between the same points by the steam railways. Several of the replies received by the Bureau of the Census from interurban railway companies emphasize this point. The president of the Detroit, Ypsilanti, Ann Arbor and Jackson Railway Company said: "The increased travel is new business developed by the electric road from the population that very seldom travel by steam." The representatives of an important company in Ohio said they were informed that, before the electric railway was built between two particular cities of medium size, the steam railroad did a business between them of about $2,000 per month. The electric railway now does three times that amount of business with a very much lower rate of fare, while the steam railroad seems to be handling about the same volume of business as before. Several of the officers of steam railways who reported to the Bureau of the Census regarding electric competition also dwelt upon the large new traffic created by the electric lines. (See page 117.)

A part of this new passenger traffic represents the patronage of farmers and their families. To the agricultural population as such the steam railways offer no special conveniences. The farmer must go to town to take the train. If he lives on an electric railway, the car may stop at his very door. As appears from the tabulation on page 109, most of the interurban companies which reported on rural patronage estimated that from 5 to 20 per cent of their traffic was from the rural population. That the proportion is not larger is due chiefly to the fact that farm dwellings are so widely scattered. A system of interurban railways connecting all the towns and villages in a given section would be conveniently accessible to only a fraction of the agricultural community.

The importance of the service of the electric railway to such of the rural population as come within its reach can scarcely be overestimated. The farmer and the members of his family can go to the neighboring village at the time most convenient to them, and far more quickly, cheaply, and comfortably than by team. In many cases they even become accustomed to make frequent trips to larger cities at a greater distance. The contact with town and city life which is thus made possible contributes greatly to the breadth of view, culture, and happiness of the farm family. The accessibility to markets and shops improves the table and dress and increases the comforts of the home. The social life, the amusements, and the varied interests of the town are made accessible to the country dweller as never before. The children are enabled readily to avail themselves of the superior school facilities of the town. In fact, the electric railway has doubtless contributed materially toward the advancement of the modern movement for the consolidation of rural schools.

Even more important has been the new traffic created by the trolley railway from among the inhabitants of small and medium-sized towns. The greater part of the traffic of most interurban railways either moves between such towns or between them and larger cities. The increased accessibility of the cities to village dwellers is one of the most important services of interurban railways. Many of the interurban lines of the miscellaneous group connect smaller towns only, but it has been found by experience that those lines which reach large cities are the most profitable. In such cities the shopper finds greater variety and often lower prices than at his home town. There the pleasure seeker finds opportunities for enjoyment vastly superior to those in the small towns. Some interurban electric railways have adopted the practice of running special theater cars.

The convenience of the electric service has greatly increased the amount of travel for purposes purely of pleasure and of social intercourse. From the social standpoint it is probably safe to say that these railways have proved a greater benefit to the women of the communities they serve than to the men. The trolley railway widens the circle of acquaintanceship. Not infrequently special cars are chartered by parties for picnics or for some other social object. Interurban

railways likewise offer facilities for travel, both from the small towns and from the large cities, to outing places and other pleasure resorts, such resorts being maintained in a number of instances at the expense of the interurban companies themselves.

The influence of electric railways in fostering suburban life has already been pointed out in another connection. (See page 28.) It is worthy of note here that some of the longer interurban railways are seeking to develop a form of long-distance suburban traffic—that is, the traffic of persons who go every day to their business in the city and live in the small town. One method adopted to further this object is that of the operation of "limited" cars on a fast schedule on several railways. Thus there is a "limited" service between Cleveland and Painesville, which permits business men to live in the smaller town and yet to reach their offices in the city, 25 miles away, within an hour. Three "limited" cars are also run each way daily between Toledo and Cleveland.

*Nature of freight and express traffic.*—The method of conducting freight and express business on interurban railways is discussed in Part II, Chapter IV. The nature of this traffic varies considerably on different railways, as may be seen from the statements, tabulated on page 109, regarding the leading articles carried by several important lines. Generally speaking the traffic consists of light weight commodities.

The significance of the electric railway as a factor in the transportation of commodities lies chiefly in two directions. In the first place it carries considerable quantities of goods between town and country. This transportation business it has largely created, for it either carries goods which were not carried at all before, or else it carries goods previously transported by wagon rather than by steam railway. The farmers who live within a reasonable distance of the electric line can send their milk, butter, provisions, vegetables, and fruits to market far more promptly and easily than before. In this way the nature of farm industry has been materially affected in some communities where the freight business of the electric railways has been highly developed. Moreover, the farmer can get groceries, meats, dry goods, and other light articles from the town much more easily than before the advent of the railway. In the second place, the electric railway furnishes much more frequent and prompt service between small towns, and between these towns and large cities, than is furnished by the steam railways. This is the case not only as compared with the light freight traffic on steam lines but even as compared with their express traffic.

People living in the small towns served by electric railways can now obtain packages of merchandise from the cities more cheaply and promptly than ever before. Local merchants are already making extensive use of the interurban lines to obtain smaller consignments of merchandise.

The electric railways have in most instances not yet attempted to carry heavy freight. They usually do no carload business and have no arrangements for exchanging freight with the steam railways. It has been held by the New York courts that a steam railway, as a common carrier, is bound to exchange freight with electric lines and to furnish the same facilities for doing so that it furnishes to steam railways. Many representatives of the interurban roads express the opinion that the business of handling express and light freight may be greatly developed, but that there is little to be gained by entering the field of general freight traffic. The cases where electric lines have undertaken a general freight business are usually explained by exceptional local conditions.

*Influence of interurban railways on local retail business.*—At this point the question arises as to the economic effect of electric interurban railways upon the business of small towns. The class most likely to be affected in its economic interests is that of the local merchants. It scarcely seems probable that the location of manufacturing industries can be materially affected by interurban railways. These railways doubtless tend in some measure to increase local population in cases where the town is near enough to a great city, or to a small industrial center undesirable for residence purposes, to draw as residents people who are engaged in business elsewhere. For example, part of the recent increase in population in Elyria, Ohio, consists of those employed in the new steel and other industries at Lorain, a few miles distant. The small town may also draw some permanent residents from the agricultural sections, who, because of the improved methods of transportation, can reach their farms easily. Increased population, of course, benefits retail trade and local economic interests generally. On the other hand, the railway may tend to take away some of the former patronage of retail merchants, not merely because of the convenience with which customers can go to the larger cities to buy goods, but also because of the convenience with which goods ordered by mail can be delivered. The competition is likely to be felt most keenly by merchants who handle the most valuable and least perishable classes of commodities. But even if there were a net economic injury to the local merchants, the economic advantage to the buyers of goods would probably more than offset the injury, and, from the broad social standpoint, may properly be considered as more important.

In order to ascertain the opinions of merchants themselves regarding the effects of electric railways, the Bureau of the Census addressed schedules of inquiry to prominent dealers in numerous towns that are connected with larger cities by fast and efficient interurban roads.

These schedules were sent chiefly to dealers in dry goods, clothing, and general merchandise. A considerable number of replies were secured, mostly from towns of between 3,000 and 20,000 inhabitants. The gist of these replies is presented in the statement below, which distinguishes the towns of less than 5,000 inhabitants from those of larger size. Four of the most important questions contained in the schedule were as follows:

Have you observed any decline in your trade because people of the town take advantage of the electric railway to go to the larger city to buy goods?

Have you observed an increased patronage from farmers and their families as a result of the development of the electric railway?

What is the general feeling among merchants and business men in your town as to the advantage or disadvantage to them from the construction of interurban electric railways?

Has the interurban railway facilitated your business in any other way, as by enabling you to get goods from the city more promptly, to go to the city to make wholesale purchases, or otherwise?

The answers to these questions are presented in the last four columns of the statement, the last column containing in addition certain other general remarks of a pertinent character which accompanied the answers.

## *Effect of electric interurban railways*

[Replies of local merchants to a

A.—TOWNS OF LESS

| Number. | LARGE CITIES WITH WHICH CONNECTED. | Name of town reporting. | Population. | Approximate distance from city (miles). | Merchants' class of business. |
|---|---|---|---|---|---|
| 1 | Philadelphia and Allentown, Pa | Quakertown, Pa | 3,014 | 40–15 | General merchandise |
| 2 | Erie, Pa | Cambridge Springs, Pa | 1,495 | 25 | General merchandise |
| 3 | Cleveland, Ohio | Chagrin Falls, Ohio | 1,586 | 20 | Dry goods |
| 4 | Cleveland, Ohio | Oberlin, Ohio | 4,082 | 30 | Clothing |
| 5 | Cleveland and Akron, Ohio | Kent, Ohio | 4,541 | 30–10 | General merchandise |
| 6 | Cleveland and Akron, Ohio | Ravenna, Ohio | 4,003 | 35–15 | Dry goods |
| 7 | Toledo, Ohio | Perrysburg, Ohio | 1,766 | 10 | Dry goods and clothing |
| 8 | Toledo, Ohio | Perrysburg, Ohio | 1,766 | 10 | Groceries and provisions |
| 9 | Dayton, Ohio | Franklin, Ohio | 2,724 | 15 | General merchandise |
| 10 | Dayton, Ohio | Miamisburg, Ohio | 3,941 | 15 | Dry goods |
| 11 | Cincinnati, Ohio | Harrison, Ohio | 1,760 | 20 | General merchandise |
| 12 | Youngstown, Ohio, and Newcastle, Pa | Hubbard, Ohio | 1,230 | 8–15 | General merchandise |
| 13 | Detroit, Mich | Marine City, Mich | 3,829 | 40 | Dry goods and carpets |
| 14 | Los Angeles, Cal | Santa Monica, Cal | 3,057 | 15 | Dry goods |
| 15 | Indianapolis, Ind | Greenfield, Ind | 4,489 | 20 | General merchandise |

B.—TOWNS OF MORE

| | | | | | |
|---|---|---|---|---|---|
| 16 | Albany and Troy, N. Y. | Glens Falls, N. Y. | 12,613 | 45–40 | Dry goods |
| 17 | Albany and Troy, N. Y. | Cohoes, N. Y. | 23,910 | 10–5 | Dry goods |
| 18 | Cleveland, Ohio | Elyria, Ohio | 8,791 | 25 | Dry goods |
| 19 | Cleveland, Akron, and Canton, Ohio | Massillon, Ohio | 11,944 | 50–20–10 | Dry goods |
| 20 | Toledo, Ohio | Bowling Green, Ohio | 5,067 | 25 | Dry goods and clothing |
| 21 | Toledo, Ohio | Adrian, Mich | 9,654 | 30 | Dry goods |
| 22 | Dayton, Ohio | Xenia, Ohio | 8,696 | 15 | General merchandise |
| 23 | Dayton, Ohio | Greenville, Ohio | 5,501 | 35 | General merchandise |
| 24 | Dayton, Ohio | Troy, Ohio | 5,881 | 20 | Dry goods |
| 25 | Youngstown, Ohio | Warren, Ohio | 8,529 | 15 | Dry goods |
| 26 | Detroit, Mich | Jackson, Mich | 25,180 | 70 | Dry goods |
| 27 | Detroit, Mich | Flint, Mich | 13,103 | 60 | General merchandise |
| 28 | Detroit, Mich | Mt. Clemens, Mich | 6,576 | 20 | Dry goods |
| 29 | Detroit, Mich | Ypsilanti, Mich | 7,378 | 35 | Dry goods |
| 30 | Grand Rapids, Mich | Holland, Mich | 7,790 | 25 | Furniture |
| 31 | St. Louis, Mo | Belleville, Ill | 17,484 | 15 | Dry goods |
| 32 | St. Louis, Mo | East St. Louis, Ill | 29,655 | | Dry goods |
| 33 | Fort Wayne, Ind | Peru, Ind | 8,463 | 55 | General merchandise |
| 34 | Chicago, Ill | Evanston, Ill | 19,259 | 15 | General merchandise |
| 35 | Chicago, Ill | Joliet, Ill | 29,353 | 35 | Dry goods |

*upon retail business in small towns.*

special schedule of inquiries.]

THAN 5,000 POPULATION.

| Effect of railways on sales to people in town. | Effect on sales to farmers and people from smaller villages. | General opinion of merchants as to effect of railways. | Remarks. | Number. |
|---|---|---|---|---|
| Decrease | Some increase | Harmful | Trade about 6 per cent less in 1903 than in 1902 | 1 |
| No effect | Increase, especially in bad weather. | No harm | Smallest towns suffer | 2 |
| Many go to city | No effect | No reply | "Bleeding us and feeding cities" | 3 |
| No effect | Increase | Merchants about evenly divided | | 4 |
| Our trade increased | Increase in rainy weather | Majority think beneficial | Sales increased about 40 per cent since 1896 | 5 |
| No injury | Increase | Beneficial | Can get goods more promptly | 6 |
| No injury | Little effect | Beneficial | Increased facilities for going to market and transporting merchandise. | 7 |
| No injury | No effect | Beneficial | Convenience in getting goods at short notice | 8 |
| Decrease | No effect | No reply | "Big city will swallow" | 9 |
| Checks increase | Decrease | Harmful | If 20 miles away from city would be all right | 10 |
| Decrease | No effect | Harmful | Better class of trade goes exclusively to large town | 11 |
| No injury | Increase | Beneficial | Increase of population using interurban cars to go to work | 12 |
| No injury | Increase | All think beneficial | Increase of trade about 18 per cent in four years | 13 |
| Takes away certain classes of trade. | No effect | Great benefit | Sales rapidly increasing; country prospering; aid in getting of goods. | 14 |
| Decline in clothing | Increase | Very beneficial | Easier to get goods; carry less stock | 15 |

THAN 5,000 POPULATION.

| | | | | |
|---|---|---|---|---|
| Increase | Decided increase | Great advantage | Sales have increased over 50 per cent in five years | 16 |
| No decrease | No effect | Somewhat injurious | | 17 |
| No decrease | Increase | Indifferent | | 18 |
| No decrease | Increase, especially in bad weather. | Beneficial | Social benefits generally | 19 |
| No decrease | Increase | Formerly opposed, now favor | | 20 |
| Little decrease | No reply | No reply | Town of this size can hold its own | 21 |
| Marked decrease | Decreased; take cars to Dayton. | No reply | Cash stores suffer most | 22 |
| No decrease | Increase | Beneficial | Our own town is county seat; will draw business | 23 |
| Little change | Increase | No fear | | 24 |
| No decrease | None | No reply | | 25 |
| No decrease | Increase | Beneficial | Small towns also benefit | 26 |
| No decrease | Increase | Beneficial | | 27 |
| Decrease | None | Disadvantage | Concentrates business in cities | 28 |
| Checks increase | None | Great detriment | Concentrates business in cities | 29 |
| Some decrease | None | Varying | | 30 |
| No decrease | Increase | Beneficial | This is a growing town | 31 |
| Decrease | Increase | No reply | Reduced fare to city injurious | 32 |
| No decrease | Marked increase | Very beneficial | | 33 |
| Decrease | No farm trade | Injurious | | 34 |
| Decrease | Increase | Beneficial | Sales increased 15 per cent since road was completed | 35 |

A marked diversity of opinion appears among these replies. Doubtless the differences are partly due to the "personal equation," but in part they must represent differences in actual conditions. Whether the effect of the opening of an electric railway between a town and a large city will be beneficial or injurious to the town merchants depends upon the size of the town, upon its distance from the city, upon the comparative excellence of the shops, upon the character of the rural population surrounding the town and the extent to which that population is served by the railway, and upon other similar causes.

Of the merchants in towns of less than 5,000 inhabitants, 5 express in one form or another the opinion that the interurban railway has been detrimental to their interests, 8 hold that they have been benefited, 2 are indefinite, and 2 do not reply. In most cases the persons who reply think that the general opinion of merchants agrees with their own.

Five merchants in the 20 towns of more than 5,000 inhabitants declare that they have suffered injury from the electric railway. One of these towns, Evanston, however, is essentially a suburb. The merchants of Ypsilanti and Mt. Clemens are particularly emphatic. These towns lie 20 miles or more from Detroit, but they have highly efficient electric service. They are in a rich agricultural region, and one might expect some increase in trade from farmers who patronize the electric railway, but such increase is denied in these reports.

A majority of the merchants of this group, however, assert that the local retailers have derived a benefit. Several of the replies, however, come from towns of considerable size, situated at some distance from any large city. The new railways naturally bring trade to such towns from the smaller villages. Several of the dealers of this group, especially in the larger and more distant towns, emphasize that point strongly. Numerous dealers in towns of less than 5,000 inhabitants, as well as in the larger towns, report an increase in their country trade as the effect of the trolley lines, three referring particularly to the advantage in this respect during inclement weather. Several merchants also speak of the advantage which the railway has conferred in enabling them conveniently to go to the city to make wholesale purchases, and also in enabling them, through the express and freight service, to get goods delivered more promptly, thus avoiding the necessity of keeping large stocks or of disappointing customers.

Some of the replies from merchants are very suggestive. One from Massillon, Ohio, says:

> Complaints are occasionally heard from merchants and dealers in small places and country towns that the interurban lines would carry their trade to the larger places, but I think in most cases they have been more than compensated by the extra number of people coming in and going out all the time and, as a rule, are very well satisfied after the lines are established. The old idea of carrying off trade and scaring the horses is dying out, and we predict that before long the electric lines will be carrying the bulk of the farmers' produce to market.

The following is from a large concern in Jackson, Michigan.

> We anticipate that trading centers, both large and small, will be considerably benefited by the extension of electric car service. If we lose by customers going to the larger city in some instances, we gain by an increased number coming from smaller places to us, and smaller towns will benefit by the ease with which farmers can get to them.

In opposition to the opinions of these two merchants as to the benefit derived from the electric railway by the smallest towns should be noted two or three replies from towns which have experienced a benefit, in which the opinion is expressed that retail trade in smaller towns has suffered. Had more numerous replies been secured from towns of less than 2,000 inhabitants, it is possible that the proportion of unfavorable opinions would have been larger.

There can be little doubt that more people than formerly go from the small towns reached by electric railways to the cities to buy certain classes of goods. In some, and possibly a majority of instances, this loss to the local merchant is more than offset by the increased population of the town and by the increased patronage from the farming classes. That the merchants in the large cities served by interurban railways have profited to some extent is beyond question. The Bureau of the Census, in fact, received replies to its schedule of inquiries from a number of merchants in such towns as Akron, Dayton, and Syracuse, which asserted that trade had been materially increased by the interurban lines. The electric railway not merely creates new passenger traffic but it creates at the same time a new demand for goods and augments the total retail trade of the sections served.

## IV.

### INFLUENCE OF INTERURBAN ELECTRIC RAILWAYS ON STEAM RAILWAYS.

The frequent service, convenient stops, and low fares of interurban electric railways have, in many instances, seriously affected the local traffic of steam railways connecting the same towns, this being specifically asserted in many of the replies from interurban railways presented on page 109.

It is probable that the increase in the average length of journeys on steam railways, as revealed by the official statistics, is in part attributable to the relative decline of local traffic through electric competition. During the five or six years prior to 1897 the average length of passenger rides on the steam railways had not increased by more than 5 per cent. On the other hand, the average ride increased from 25.04 miles in 1897 to 30.3 miles in 1902, or 21 per cent.[1]

[1] Statistics of the Railways of the United States, 1902, page 64.

There is considerable difference of opinion as to whether, in general, electric railway competition up to the present time has been injurious to the interests of the steam railways. In order to ascertain the views of railroad officials themselves on this subject, inquiries were addressed to the traffic officers of the leading railroads in the Northern and Eastern states. Replies were received from 14 of these companies, namely: The Baltimore and Ohio; Boston and Albany; Boston and Maine; Chicago, Cincinnati, and Louisville; Erie; Flint and Pere Marquette; Lake Erie and Western; Lake Shore and Michigan Southern; Lehigh Valley; New York, Chicago and St. Louis; New York, New Haven and Hartford; Pennsylvania; Toledo, St. Louis and Western; and the Wabash. The substance of these replies is presented in the tabular statement below, the names of the individual companies being omitted. The first 7 companies in the table are situated, in whole or in part, in the seaboard states, while the last 7 are situated in the North Central states. The most important questions in the schedule were as follows, the questions corresponding in order to the columns in the statement:

To what extent, if at all, has the local passenger traffic of your company been reduced by the competition of these lines?

To what extent, if at all, has long-distance traffic on your railroad been created by the conveniences offered by electric railways for reaching the steam road?

Has your company, as the result of electric railway competition, (*a*) Reduced fares? (*b*) Increased or decreased the number of trains? (*c*) Otherwise changed or improved its local service?

Do you anticipate such further extension or improvement of interurban lines as to render them more serious competitors for either local or long-distance passenger traffic?

*Replies of steam railroads regarding the effect of electric railway competition.*

| Number. | EFFECT OF ELECTRIC LINES IN DECREASING TRAFFIC BETWEEN COMPETING POINTS. | Effect on long-distance traffic. | EFFECT ON PRACTICE OF STEAM LINES. | | Ultimate and general effect on steam lines. |
|---|---|---|---|---|---|
| | | | Fares. | Number of trains. | |
| 1 | For distances of 16 miles or less: proportion lost varies. | Inappreciable | Reduced on one branch. | Increased by 11 | Do not anticipate greater competition; can not tell. |
| 2 | 90 per cent | No reply | Reduced in a few cases. | None | Will become more serious competitors in long-distance travel. |
| 3 | Considerable | No reply | None | Trains and stops reduced; better service for longer rides. | No reply. |
| 4 | 10 miles or less, decrease 90 per cent; 10 to 50 miles, 50 to 75 per cent. | None | None | Decreased to minimum. | Will cut into business up to 50 miles. |
| 5 | Decreased for distances to 25 miles. | None | No reply | No reply | Steam lines can not overcome loss of business by lowering fares. |
| 6 | Material | No reply | No reply | No reply | No reply. |
| 7 | Enormous | No reply | No reply | No reply | No reply. |
| 8 | Some | Cross lines serve as feeders. | None | None | Beneficial; creating long-distance travel. |
| 9 | 75 per cent | None | Reduced slightly | None | No immediate change anticipated. |
| 10 | Practically all business done by electric line.[1] | No reply | None | None | Serious where lines are parallel, at least on local business. |
| 11 | About 25 per cent | Will finally increase it | Reduced | None | Beneficial; increasing long-distance travel. |
| 12 | 25 to 75 per cent | None | None | None | Will take away more business by extension. |
| 13 | Increase checked | Increased at one or two points. | Reduced | None | Not serious; probably creates freight business to suburbs. |
| 14 | 25 to 75 per cent | None | None | None | New lines will cut further into local traffic. |

[1] Electric railway built before steam road.

Of the 14 replies in the table, one states that increase in local steam railway traffic between points served by the electric railways has been checked, while all the rest say that local traffic has been reduced, in most cases very sharply. The distance within which electric competition is at present effective naturally varies with the efficiency of the electric service.

Statistics showing the effect of interurban competition have been published in various railroad and other periodicals. Thus, one journal states that on the Lake Shore and Michigan Southern Railroad the number of local passengers carried between Cleveland and Oberlin and intermediate points fell from 203,014 in 1895 to 91,761 in 1902, and the number carried between Cleveland and Painesville fell from 199,292 to 28,708. On the New York, Chicago and St. Louis Railroad the passengers between Cleveland and Lorain fell from 42,526 in 1895 to 9,795 in 1902.[1]

Some of the representatives of interurban railways assert that whatever loss the steam railways suffer in local traffic is offset by the gain in long-distance traffic induced by the electric lines. The fact is pointed out that much of the passenger traffic on the electric railways is new traffic. It is suggested that the habit of traveling is being developed among people who formerly seldom traveled at all, and that this fact, combined with the fact that steam railways have been made more accessible through connection with electric lines, leads to the conclusion that steam railway systems will ultimately be benefited, if they are not already deriving benefit. An official of a prominent eastern steam road recently asserted that the electric roads take away about 65 per cent of the local business, but in a year or two new through business, more profitable than that lost, comes to the steam railway through the aid of its competitor. Three of the officials of steam railways, replying to questions of the Bureau of the Census, take somewhat the same position. One says, "I myself do not view competition as being detrimental to the interests

[1] Railroad Gazette, January 22, 1904.

of this company. Am of the opinion that interurban lines, as a whole, will finally work out to the good of the public and induce long-distance travel by people who have heretofore been indifferent to things that were not purely local." This official, however, does not claim that the benefit mentioned has been as yet definitely experienced.

A majority of the replies from officers of the steam lines, however, deny that there has been an increase in long-distance travel as a result of the electric railways, and several assert that they expect still more serious injury in the future from the increase in the number and length of electric lines and the improvement of their facilities. The consensus of opinion seems to be distinctly hostile to the electric railways. Doubtless the time has been too short to enable steam railway officials to reach final conclusions on this subject, and it is perhaps natural that they should at first be more suspicious and hostile than the ultimate effects of electric competition would justify.

The policy of steam railways with regard to meeting electric competition varies greatly and is much affected by the local conditions. Five of the 14 replies above tabulated state that local fares have been reduced, at least in some cases, but 6 assert definitely that this has not been done. Another company says that because of the other advantages possessed by electric railways the loss of business can not be overcome by lowering the fares on the steam railways. This appears to be the general view of steam railway men.[1] Two of the companies report that they have been forced to reduce the number of local trains on account of inability to compete with electric lines. One company, on the other hand, apparently as a competitive measure, has increased to some extent its local train service.

As an illustration of a policy which is probably pursued by a considerable number of companies, the following more extended quotation from the reply of a prominent traffic official may be given:

> It has been the policy of this company not to meet trolley competition by a reduction in rates, for the reason that this action on one division of our system would create jealousy on the part of people living in other suburban territory, and is likely to result in similar reductions on all branches in suburban districts.
>
> Our experience has taught us that the electric railway, in being able to take the passenger from his house direct to his office at a nominal rate, eventually gets enough of the steam line's traffic to eat up all its profit and it can not be covered by any reduction in rates. We have therefore followed the method employed by [certain other lines], viz, to take off stops at near-by points most affected by trolley competition, thus giving patrons at stations farther away from the terminal quicker and better service, and wait for the overflow travel served by the trolley lines in the outlying districts, which seeks the railroads in bad weather and eventually increases to some extent its aggregate of business.
>
> The open trolley cars in warm weather are particularly attractive to the suburbanite, as is shown by a comparison of the earnings of our * * * branch during the month of August as compared with November, aggregating about $5,590 in the former and $11,700 in the latter.

The suggestion in this letter that the reduction of certain kinds of suburban service on the steam railways permits improvements in other parts of the service, is one which has been brought out at various times by other representatives of the steam railways. Some few have gone so far as to hold that the benefit resulting from the reduction of the local service was greater than the injury suffered. A writer in a prominent railway journal has even claimed that suburban service is usually unprofitable to the steam railways and that it interferes very seriously with their through traffic.[2] Evidently what would hold true of some railways would not hold true of others. Some companies have derived a large part of their revenue from local passenger traffic, and have built branches primarily to accommodate such traffic. It is probably a fair conclusion from experience that a main line may gain traffic by being paralleled by an electric railway, but that a branch line is almost sure to lose.

Two or three of the important steam railways which have been most affected by electric competition have sought to meet it by themselves introducing electric service between certain points. As far back as 1895, the New York, New Haven and Hartford Railroad Company equipped its Nantasket Beach system with electricity, and later three other branch lines were so equipped. The most important of these branches is that between Providence and Fall River. The fare between these points was reduced from 50 to 20 cents, and the frequency of service greatly increased. More recently, the Boston and Maine Railroad has built an electric line for heavy service between Concord and Manchester, N. H., and it also controls an electric system in Maine. The Pennsylvania Company has an electric system along the seashore in southern New Jersey. The Long Island Railroad has a stretch of track along the seashore which it has equipped with overhead trolley wires. Local electric cars and steam trains covering longer journeys operate over the same track. Such a combination has at the present stage of development many advantages, but the conditions of traffic are not always adapted to it.

In several instances electric traction has been applied to entire railways which were formerly operated by steam, or has been combined with steam traction on new lines. In most such cases, freight traffic is hauled by steam locomotives. Among railways of this type are the Cincinnati, Georgetown and Portsmouth, the new line between Bellaire and Zanesville, Ohio, the Peoria and Pekin Terminal Railway, and the Waterloo and Cedar Falls Railway (Iowa).

In two or three instances, steam railways have permitted separate companies to equip a part of their tracks

[1] See, e. g., editorial in Railroad Gazette, January 22, 1904.

[2] Quoted in Street Railway Journal, August 23, 1902; compare Railroad Gazette, January 22, 1904.

with electricity for the handling of local traffic. Such an arrangement exists on the line of the Northern Pacific Railway between Everett and Snohomish, Washington.

It is very probable that steam railways will, to an increasing extent, equip existing tracks with electricity for the hauling of a part or all of their traffic, or will build new electric lines at least for suburban passenger service. While the main purpose of the New York Central and Pennsylvania railways in introducing electric traction at their New York termini is to promote safety in the tunnels, they will gain also in the greater attractiveness, frequency, and cheapness of the suburban service which they furnish. In the case of the New York Central, at least, suburban trains will be operated to their destination by electricity. Two serious difficulties are, however, encountered by steam railways in attempting to use electricity for suburban trains. In the first place, it is hard to carry the electric current through the complicated switch tracks in the terminal yards. In the second place, if trains are run often enough to compete with those of the purely electric railways, they are likely to interfere with through passenger and freight trains. Indeed, the suburban service of a large city, whether conducted by steam or electricity, can be made thoroughly satisfactory only where it uses its own tracks, completely separated from the tracks devoted to through traffic.

This last consideration also bears on the question of the general future development of electric railways. It is not likely that interurban electric lines of the present type, even though they may be extended into long systems, can handle satisfactorily and on a large scale both local and through passenger and freight business. Even if single tracks be replaced by double tracks there is apt to be great interference between these different classes of traffic as soon as the aggregate business becomes heavy. The advantage of the local service of the interurban lines consists in its frequency and its numerous stops. Local cars are very likely, therefore, to get in the way of fast through trains; while on the other hand the slower through freight trains will tend to impede the local passenger cars. It has been suggested that freight trains might be broken up into separate units. This would largely do away with the necessity of switching, which is one of the chief causes of the delay in handling steam railway freight, and would thus increase the speed of through freight service. But to do this would so greatly multiply the number of moving units on lines with an extensive business that a single track could not possibly accommodate all the traffic in one direction.

These same considerations also cast doubt upon the possibility of so revolutionizing the working of the more important of the present steam railways, by the partial or complete introduction of electric power, as to enable them to perform both their present functions and the added functions of the interurban lines. Wherever traffic is very dense two distinct railway systems seem desirable—one for local traffic, both passenger and freight, and the other for through traffic. Both of these systems may ultimately be operated by electricity. Both kinds of railways in a given section may finally fall under the same ownership. Cooperation between them would afford many conveniences and economies. But the public will gain if these two conflicting kinds of traffic are handled on separate tracks. Where, however, the aggregate traffic is comparatively light, much would doubtless be gained if the present steam railways, following the example of the interurban railways, would increase the frequency and convenience of their local freight and passenger service by the use of single cars operated by electricity on their existing tracks.

# CHAPTER VIII.

## CONSOLIDATION OF STREET RAILWAYS.

*General tendency and its results.*—One of the most important factors in street railway progress has been the combination of formerly independent railways into great systems. Fifteen or twenty years ago most of our large cities were served by several separate animal-power railways. Many of the old companies operated one line only, occupying either a single street or a few streets connecting with one another, and furnishing transportation to a single section of the city. There was usually no competition between these independent companies in the matter of fares. In many instances, indeed, the opportunity for competition was slight, the areas served by the different companies overlapping but little; yet in some cases, as in New York, parallel lines existed which, to a limited extent, competed for traffic by improvements in service.

The introduction of mechanical traction, especially of electric traction, developed a much stronger tendency toward consolidation than existed before. One motive for combination was doubtless a desire to eliminate competition, for the cheapening of the cost of operation by the new method tended to increase the number of competing lines. By combination also unnecessary duplication of trackage was avoided. Even more important was the desire to reduce operating expenses. So long as each car had possessed its independent source of power, as was the case with animal traction, there was, after the system had reached a limited size, little saving in cost through doing business on a larger scale. Cable or electric power could be much more economically furnished by power plants of great capacity, capable of operating several railway lines. By consolidation, moreover, it was possible to locate the power houses in such a way as to reduce the amount of electrical or cable equipment necessary for the distribution of power, and also to save in the expense of bringing coal to the plant. A further advantage from operation under unified control was found in such instances as frequently arise in the business centers of cities, where a single track is used for cars of several different lines. If these lines were operated by separate companies it became necessary, with electric traction, either to maintain several overhead wires or to enter into complicated agreements for the assignment of the cost of power from a single wire. If operated by a consolidated company the power furnished by a single set of wires would serve, without elaborate calculations, for the operation of all the lines. Other minor economies of a like character secured by combination do not call for discussion.

The greatest advantage of consolidation was one which accrued both to the users of the service and to the street railways themselves. The establishment of a unified system made it possible to carry passengers more nearly where they wanted to go and to carry them longer distances. In many cases these advantages were secured by modifying and extending the routes covered by single cars; in other cases transfers to connecting lines were given.[1] So long as connecting lines were operated by different companies, the use of transfers involved complication and difficulty and was rarely known. The lengthening of the possible trips, which increased the attractiveness of the street railway, so augmented the traffic that it proved decidedly profitable to the companies.

So great were these various advantages from combination found to be, that in almost every great city of the United States all, or nearly all, of the formerly independent companies have been gradually brought together into one system during the past ten or fifteen years. This has been true in Brooklyn, Baltimore, Boston, Philadelphia, Buffalo, Cincinnati, Pittsburg, Cleveland (since the census year), Detroit, St. Louis, in the urban center consisting of Jersey City, Newark, Paterson, and smaller towns, in Minneapolis and St. Paul, in New Orleans, Louisville, Milwaukee, Denver, Omaha, and in several other large cities.

In several of these cities one or more minor lines, mostly of a suburban character, are still outside the consolidation. In Manhattan and Bronx boroughs of Greater New York a single company now operates the surface railways, while another company controls all the elevated railways as well as the subway system. The greater part of the street railway traffic of San Francisco is carried by a single company recently consolidated, although several independent companies of some importance still exist. Combination has been effected to a considerable extent in Chicago, but that city still has two extensive systems of surface railways and several minor systems, as well as four elevated railways which are independent of the surface railways and

[1] See discussion of transfers, page 41.

of one another. These various lines, however, largely serve separate sections of the city. In Washington two important companies are still in independent existence.

Elsewhere has been pointed out the increase in the average importance of the individual railway companies in operation in 1902 as compared with 1890, an increase due largely to the process of consolidation. This increase in the importance of companies is still further brought out by the following table, which, for 1890 and 1902, classifies the operating companies according to the number of miles of line operated (first main track, not all tracks), and also indicates the total length of line owned by companies falling within the various groups. The figures for 1890 include only the companies for which precise returns of trackage were made.

TABLE 80.—*Distribution of operating companies according to length of line: 1902 and 1890.*

| LENGTH OF LINE (MILES). | 1902 | | 1890 | |
|---|---|---|---|---|
| | Number of companies. | Length of line, miles. | Number of companies. | Length of line, miles. |
| Total | 817 | 16,651.58 | 691 | [1]5,119.53 |
| Under 10 | 394 | 1,957.16 | 557 | 2,304.49 |
| 10 but under 20 | 219 | 3,148.94 | 99 | 1,358.42 |
| 20 but under 30 | 76 | 1,878.54 | 16 | 400.39 |
| 30 but under 40 | 34 | 1,197.83 | 7 | 251.74 |
| 40 but under 50 | 25 | 1,117.05 | 4 | 178.04 |
| 50 but under 60 | 16 | 892.86 | 2 | 101.57 |
| 60 but under 70 | 12 | 785.22 | 2 | 130.33 |
| 70 but under 80 | 7 | 532.46 | 1 | 76.48 |
| 80 but under 90 | 6 | 515.30 | 1 | 84.42 |
| 90 but under 100 | 3 | 277.12 | | |
| 100 and over | 25 | 4,349.10 | 2 | 238.65 |

[1] Exclusive of 663.94 miles, estimated, in 1890.

It will be seen that in 1890 more than three-fourths of all the companies had less than 10 miles of line each, and the total line of such companies was more than two-fifths of the total for the United States. In 1902, on the other hand, less than one-half of the companies were of this small size and their total length was only about one-eighth of that for the country. In 1890 there were only 8 companies with more than 50 miles of line, while in 1902 there were 69 companies of this size. In 1890 only 2 companies had more than 100 miles of line and their length was less than one-twentieth of the total. In 1902, 25 railways were more than 100 miles long and their aggregate line was considerably more than one-fourth of the total for the United States.

*Methods of combination.*—The three leading methods of consolidation in the street railway business have been:

(1) Merger. The properties of the former companies are bought outright, for cash or for shares of the new corporation, and the old corporations go out of existence.

(2) Lease. The controlling company takes over the entire operation of the system of the lessor, often for nine hundred and ninety-nine years, and agrees to pay a definite rental to the lessor company, the latter continuing at least nominally in existence.

(3) Stock ownership. Purchase of all, or of a controlling interest in, the stocks of companies, which continue in existence and may even continue to maintain nominally independent operation.

In several cities, two or even all three of the above-mentioned methods of combination have been employed, more or less indiscriminately, in bringing together a single street railway system. In others, one method of combination has been followed exclusively or has predominated. State laws or municipal charters and franchises have sometimes been the determining factor as to the form of combination used.

Probably the greater number of the street railway consolidations have been effected through merger. This was the form of combination employed in most medium-sized cities. It was also the form followed, in whole or in part, by the West End Street Railway Company of Boston (which is itself now, however, leased to the Boston Elevated Railway Company), the Detroit United Railway Company, the New Orleans Railways Company, the United Railways and Electric Company of Baltimore, and others.

Consolidation by means of leases[1] is particularly common in New York and Pennsylvania, the laws of the latter state rendering other forms of consolidation less practicable. The operating company or lessee regularly assumes the indebtedness of the lessor company, and guarantees a fixed dividend on its stock, except in cases where stockholders receive no return from any source. It is quite a common arrangement that the rate of dividend guaranteed shall increase year by year from the date of the lease, till, after six, eight, or ten years, a maximum is reached which remains the basis of future payment. In a few instances the lessor companies continue, at least temporarily, to be operated separately, but usually they are as completely united with the controlling company under one management as if they had been merged with it.

The lease is sometimes used where its object is not primarily that of consolidation. Thus, the St. Louis Transit Company, in 1899, acquired by lease the United Railways Company, which had already secured control of all the street railways of the city except two or three suburban lines. So, too, the Cincinnati Traction Company recently leased the lines of the Cincinnati Street Railway Company without increasing the number of companies in the combination. The purpose in such cases may be to facilitate a change in the control of the business; or the lease may be merely a device by which, without any real change in ownership, a large part of the net earnings of the system may be given the appear-

[1] See further on this subject, pages 54, 58, 60, 65, and 80. Table 39 shows the number of nonoperating lessor companies in each state and their financial transactions.

ance of being necessary to meet fixed charges, since the operating company always treats its rentals as such.

The third method of combination, by stock ownership, while found less frequently than either of the others, is being adopted apparently as the favorite method to accomplish the greatest consolidations. Like the lease, it offers the advantage that the original companies maintain their corporate existence, upon which the validity of franchises and privileges sometimes depends. It has the further advantage that a company may be brought into combination merely by the purchase of a majority of its stock without the purchase of its entire property. For this reason this form of combination is sometimes made a preliminary step toward a later combination by merger or lease.

Companies which are already operating railways quite frequently buy a majority or the whole of the stocks of other companies in order to secure control. In such case the subsidiary company may keep up nominally independent operation, but in reality its operations are merged with those of the controlling company to whatever degree the latter desires, for the purpose of effecting economies or for other objects. Thus the Metropolitan Street Railway Company in New York (itself leased to the Interurban Street Railway Company) has for a number of years held a controlling interest in the stocks of three other railways, which it practically operated directly, although separate reports of their business were made.

The latest development in methods of consolidation is the securities company, a corporation which merely holds the stocks of operating street railways and does not itself own any tracks or conduct any operations, but receives its income from the dividends of the corporations whose stocks it holds. This method has been employed, for example, in recent great street railway combinations in New York, Brooklyn, Pittsburg, Buffalo, Minneapolis and St. Paul, and San Francisco. In some cases a holding company of this type leaves all of its subsidiary companies in separate operation, though, of course, their independence is only nominal. In several cities the holding company has placed the entire operation of the plants which it controls in the hands of a single one of the subsidiary companies. Thus the Philadelphia Company, of Pittsburg, which, besides holding practically all the street railways of that city and vicinity by stock ownership or lease, also controls gas, electric light, and other properties in the same way, has handed over the operation of its street railway system to the Pittsburg Railways Company, specially chartered for that purpose. A similar arrangement exists between the International Traction Company of Buffalo, a holding company, and the International Railway Company, which operates its lines. The consolidation in San Francisco took the same form.

An interesting recent development is that of bringing together under common ownership street railway lines widely separated from one another. Comparatively little of the advantage of combination between connecting or competing lines is secured in such case. There may be some slight economy in doing away with unnecessary superior officers, and methods of operation may be improved by reason of the superior capacity and experience of the officers of the central company. The chief object in the formation of such companies, however, is to furnish a convenient form of investment to capitalists. Instead of individually buying the securities of railway companies situated, perhaps, in distant sections of the country, with whose operations they could have little familiarity, investors form a holding company, with officers whose duty it is to represent their interests and watch the management of all the different railways.

Holding companies of this type have been developed to a greater extent in Philadelphia than anywhere else. The Interstate Railways Company, which succeeded the United Power and Transportation Company in 1902, controls about 15 street railway systems in Pennsylvania, New Jersey, and Delaware, together with 2 electric light companies. It has also acquired the stock and franchises of numerous new railway companies. Some of the lines controlled are more or less closely connected, and others may be brought into connection later, but the primary purpose has been, apparently, not so much to make a single great system as to provide a convenient form of investment. The American Railways Company of Philadelphia controls 8 or 9 widely separated street railways and lighting plants in Ohio, Illinois, New Jersey, and Pennsylvania, and also a minority interest in the stock of the Chicago Union Traction Company. The Railways Company General controls stocks of 7 railway lines, and lighting plants in New York, Pennsylvania, and Michigan.

The United Gas Improvement Company, of Philadelphia, has recently extended its investments into the street railway field. This company operates the Philadelphia Gas Works and controls, in one way or another, the gas and electric light properties in more than thirty cities of the United States. One of its subsidiary corporations is the Connecticut Railway and Lighting Company, which in 1900 secured control of street railways serving a dozen different towns and cities in Connecticut, including about 160 miles of track, or more than one-fourth of the entire trackage of the state. The Connecticut Railway and Lighting Company also operates water, gas, and electric light plants. The United Gas Improvement Company in 1902 secured control of almost the entire street railway system of Rhode Island. Its relation to its subordinate companies in that state is peculiarly complicated. A corporation known as the United Traction and Electric Company, chartered in New Jersey, owns the stocks of the three leading street railway companies of Rhode Island. These companies, however, are leased to the Rhode Island Company, an

operating corporation created in 1902 by special act of the Rhode Island legislature, which has agreed to pay a rental sufficient to provide the United Traction and Electric Company with interest on its bonds and 5 per cent dividends on its stock. This rental is guaranteed by the United Gas Improvement Company, which is the promoter of the entire combination. Finally, the stock of the Rhode Island Company is owned by the Rhode Island Securities Company, a New Jersey corporation, through which the United Gas Improvement Company exercises its control. The street railway trackage in this combination amounts to about 270 miles. The Rhode Island Securities Company is also acquiring gas and electric light properties in this same territory. In 1903 a consolidation of nearly the entire gas, street railway, and electric light business of northern New Jersey was effected under the name of the Public Service Corporation, and this company is said to be affiliated with the United Gas Improvement Company.

Centralized ownership of street railway properties has also been brought about in a number of instances without the intervention of formally organized companies. The very wide reaching street railway investments of the so-called Whitney-Elkins-Widener syndicate is the most important instance. A number of banking firms in eastern cities control, in the interest of their clients, several railway and lighting plants in scattered localities.

A combination of somewhat unusual form is that known as the Massachusetts Electric Companies, formed in 1899. This is not an incorporated company, but a voluntary association managed by a number of trustees, who hold title to the stocks of street railways and electric light plants, and who have issued trust certificates, common and preferred, to the amount of about $35,000,000. This association has bought up the securities of thirty or forty companies originally separate and has consolidated most of them into three operating companies—the Boston and Northern Street Railway Company, the Old Colony Street Railway Company, and the Hyde Park Electric Light Company. The street railways controlled have more than 850 miles of track, including nearly all the lines in eastern Massachusetts outside of the city of Boston. This combination has aimed to establish a unified system of transportation out of the formerly disconnected lines. It has been able through combination to realize important economies, as well as to give advantages to the public. The Boston Suburban Electric Companies is a less important combination of the same character.

*Street railway consolidation in New York city.*—The recent history of the surface railways of New York city illustrates strikingly the strength of the tendency toward consolidation, and likewise furnishes examples of all the different methods of combination which have been described. In 1890 the surface railway business of the present borough of Manhattan was in the hands of about fifteen independent operating companies, no one of which controlled more than 30 miles of track, out of a total length of about 210 miles. Consolidation had begun even before this time, but had not gone far. The Broadway and Seventh Avenue Railway had leased the newly established cable system of the Broadway Surface Railway, and also the South Ferry Railway, so that it had a continuous line on Broadway and Seventh avenue, forming a great central stem to which branch lines could be attached with advantage. The Twenty-third Street Railway had, as far back as 1876, leased the Bleecker Street and Fulton Ferry line. Half a dozen of the great longitudinal avenues of the city, however, were still occupied by as many independent street railway lines.

The first important step toward general consolidation was taken in 1891 by the organization of the Metropolitan Traction Company, which was a stockholding corporation only. Within two years it had secured a controlling interest in the stocks of more than one-half of the surface railway companies. In 1893 the Metropolitan Street Railway Company was organized as an operating company, subordinate to the traction company. This company took over the Houston, West Street and Pavonia Ferry line and the Broadway Surface and South Ferry lines. In the following two years the new cable railways of the Metropolitan Crosstown, the Lexington Avenue and Pavonia Ferry, and the Columbus and Ninth Avenue companies were also absorbed in the Metropolitan Street Railway Company. Meantime, the latter company leased the older lines of the Broadway and Seventh Avenue, the Forty-second Street and Grand Street Ferry, the Central Park, North and East River, the Bleecker Street and Fulton Ferry, the Twenty-third Street, the Ninth Avenue, and the Sixth Avenue companies, whose stocks were said to be largely owned by the traction company. By 1895 the system controlled by the Metropolitan Traction Company included 132 miles of track out of an entire trackage of surface railways in Manhattan borough of 286 miles. It owned all the important longitudinal railways except those on Second, Third, Fourth, and Eighth avenues.

The progress of consolidation for some years after 1894 was less rapid. In 1896 the street railway lines of the New York and Harlem Railroad Company (Fourth and Madison avenues), and the Eighth Avenue line, and in 1898 the Second Avenue Railway, were leased to the Metropolitan Street Railway Company. Several new railways were constructed during these years, separate charters being taken out for the purpose of securing the franchises. The stocks of the corporations operating these new lines—the Twenty-eighth and Twenty-ninth Streets Crosstown, the Thirty-fourth Street, the Thirty-fourth Street Ferry and Eleventh Avenue, and the Fulton Street Railway companies—were all held by the Metropolitan Traction Company. In 1897 the traction company bought control

of the Central Crosstown Railroad Company, to which the Christopher and Tenth Street line had previously been leased. Four of these last-mentioned companies have continued to operate separately. In 1898 the Metropolitan Traction Company, having fulfilled its object of securing control by stock purchase, was dissolved, and the securities held by it became the property of the operating company, the Metropolitan Street Railway Company.

At the beginning of 1900 this company found only one important competitor still in existence, the Third Avenue Railroad Company. As far back as 1895 the Third Avenue Company had begun to realize that to maintain its position it must secure branch and connecting lines. It accordingly bought a controlling interest in the extensive Forty-second Street, Manhattanville and St. Nicholas Avenue Railway in the upper west side of the city. In 1897 it similarly obtained control of the Dry Dock, East Broadway and Battery Company, with an extensive system of horse lines in the lower part of the island. In the next year the Third Avenue Railroad bought a majority of the stock of the Union Railway Company, which had grown up by the gradual consolidation of a dozen or more companies and which operated 50 miles of track in Bronx borough and the adjacent parts of Westchester county. In 1899 the Third Avenue Company bought up the Tarrytown, White Plains and Mamaroneck Railway and the Yonkers Railroad, which added a large amount of track to its system in Westchester county.

At the beginning of 1900 the Third Avenue Railroad Company controlled more than 200 miles of track, or nearly as much as that of the Metropolitan Street Railway system. Considerably less than half of this trackage, however, was in Manhattan borough, while nearly all that of the Metropolitan system was included within that borough. With the adoption of underground electric traction the Third Avenue system seemed likely to become a very serious competitor of the older combination. The officers of the Metropolitan Street Railway Company took advantage of a heavy fall in the stocks of the Third Avenue Company, due to difficulty in meeting the wasteful expense connected with its installation of electric traction, to buy in open market a controlling interest in the stock of its rival. Soon thereafter the Metropolitan took over the Third Avenue Company by lease, but for the time being it has maintained the separate operation of the lines of that company and of those of each of its subsidiary corporations, paying them the amount of their net earnings as a rental.

In 1902 a still further combination was effected. The Interurban Street Railway Company[1] had been formed in 1901 to construct new trolley lines in the borough of Bronx and in Westchester county, for which it held extensive franchise rights. This company now leased the entire Metropolitan Street Railway system, assuming all the indebtedness and agreeing to pay a rental of 7 per cent on the $52,000,000 of stock. At the same time the Metropolitan Securities Company was formed, under the business-corporation law of New York. This holding company owns all of the shares of the Interurban Street Railway Company, and thus has ultimate control of the entire surface railway system of Manhattan and Bronx boroughs and the adjacent territory. For a long time to come by far the greater part of the profits of the street railways in this combination will be devoted to rental payments on the immense amount of stock and bonds of the various lessor and sublessor companies.

No form of combination has yet been effected between the elevated railways and the surface lines of Manhattan borough; although several years ago the Third Avenue Railroad entered into an operating agreement with the Manhattan Railway (elevated) by which, on payment of 3 cents in addition to the regular fare, a passenger on either system could transfer to the other. It is significant, however, that in 1903 the elevated railway company was merged with the company which constructed the new underground transit system, the Interborough Rapid Transit Company. The elevated system itself is the result of a consolidation of three companies.

The process of consolidation in Brooklyn has paralleled that of Manhattan. By merger, lease, and ownership of securities, both the elevated and the surface lines have been brought together under the Brooklyn Rapid Transit Company, which controls at present more than 500 miles of track.

The process of consolidation in Greater New York has been contemporaneous with great changes and improvements in methods of operation. It is therefore impossible to judge from statistics the degree to which consolidation has increased traffic or reduced operating expenses. That it has done much in both directions is beyond question. The changes in the routing of cars and the extension of the transfer privilege have materially increased the attractiveness of the service.

*Street railway consolidation in Philadelphia.*[2]—The process of street railway combination in Philadelphia began earlier and was completed earlier than in New York. During the period from 1857 to 1874 about 40 separate companies were given charters in Philadelphia. In 1876 there were in existence 17 separate companies, operating altogether 289 miles of track. It appears that from 1859 on the companies had largely acted in harmony so far as the fixing of fares and the like were concerned, through an organization known as "The Board of Presidents of City Passenger Railway Companies." In 1879 and 1880 the process of combination began by the lease

[1] The name of this company has since been changed to New York City Street Railway Company.

[2] Based largely on the monograph, The Street Railways of Philadelphia, by F. W. Spiers, published by Johns Hopkins University.

of two or three extensive lines to the Union Passenger Railway Company. In the next year three other roads were brought together into the People's Passenger Railway Company. These two systems carried about two-fifths of the entire number of passengers in the city. In 1883 the Philadelphia Traction Company was formed by men who have since extended their street railway interests into many cities of the United States. This company never owned any track, but gradually extended its control by means of leases. The Union system, already described, was the first to be leased to the Philadelphia Traction Company. In 1887 an act was passed by the state legislature for the purpose of facilitating the combination of street railways, which provided special powers for what were legally known as "traction companies." The People's Traction Company, which was soon organized under this act, leased the People's Passenger Railway Company, as well as a number of other formerly independent railways. The Philadelphia Traction Company continued to absorb additional lines. The movement was favored by the change from horse to electric power. By 1895 practically all the street railways of the city had been brought together into four systems. The Philadelphia Traction Company controlled 203 miles of track; the Electric Traction Company, 130 miles; the People's Traction Company, 73 miles; and the Hestonville, Mantua and Fairmount Passenger Railway Company, 24 miles.

The time had now arrived for complete consolidation. The new Union Traction Company, under sanction of the act already mentioned, took over all of the stock of the Electric Traction Company and the People's Traction Company, issuing in exchange therefor trust certificates bearing 4 per cent interest. It also took over by lease the Philadelphia Traction Company, and, in 1898, the Hestonville, Mantua and Fairmount Passenger Railway Company. The lines of the Electric Traction Company and the People's Traction Company were also leased to the Union Traction Company, thus giving a double form of control.

In 1901, by special act of the state legislature and by ordinance of the Philadelphia city council, a large number of interrelated franchises were granted to a new syndicate, which proceeded under them to organize various companies to construct surface, elevated, and underground railways. It was the intention that these new lines should constitute a competing system. In 1902, however, the Philadelphia Rapid Transit Company was organized, which acquired all of the stock and franchises of the new companies, and also took over by lease the entire existing system of the Union Traction Company, agreeing to pay therefor a rental on the par value of its $30,000,000 of stock (of which only $10,500,000 was paid in). This rental was 3 per cent at the beginning, and is to increase by 1 per cent every two years until 6 per cent is reached. The Philadelphia Rapid Transit Company has also secured control of the Doylestown and Willowgrove Railway Company, operating in the suburbs of Philadelphia, and it is quite possible that further consolidation with suburban companies may take place in the future.

The complexity of the process of consolidation in Philadelphia may be seen from the list, on page 264, of companies united under the Union Traction Company. Thirty-nine companies altogether are enumerated in this list, and their relations to one another are shown by the degree of indentation. The form of combination universally employed is the lease, though in many cases it is supplemented by ownership of part or all of the shares of the lessor company by the controlling company. The table shows, for example, that the Philadelphia and Darby Railroad Company was leased to the Philadelphia City Passenger Railway Company. The latter was subsequently leased to the West Philadelphia Passenger Railway Company, which became later a lessor to the Philadelphia Traction Company. The last-named company was leased to the Union Traction Company, which, as already stated, is now a lessor to the Philadelphia Rapid Transit Company, thus making six stages in the process.

# CHAPTER IX.

## FRANCHISES, PUBLIC REGULATION, AND PUBLIC OWNERSHIP.

During recent years widespread and active interest has been manifested in the relations between street railway companies and the local governments representing the interests of the people. Two peculiarities of urban railways bring this relation into special prominence and justify reasonable public regulation. The first is the fact that the railway in urban communities usually occupies public streets and ways. The second is the tendency of the street railway business toward monopoly, a tendency which has been abundantly demonstrated by experience. With the growth of population a constantly increasing proportion of the people in the cities are forced to patronize the railways, and the need of protection against the possible abuse of monopoly power correspondingly increases.

The actual regulations in force with regard to the operation of street railways differ widely among the different states. Indeed, they vary almost as widely among different companies in the same state or even in the same city. For the purpose of ascertaining more fully the provisions of state and local legislation with respect to street railways, the Bureau of the Census included in its general schedule addressed to the street railway companies several questions regarding their franchises. It also addressed inquiries to the mayors of a large number of municipalities, including one or more in every state and all the largest cities. Much valuable information was received in response to these inquiries, especially from the mayors. Copies of city charters and of franchise ordinances were furnished in many instances. It was impracticable to attempt to learn in detail the provisions of every local franchise, as many consolidated companies are operating under a score or more of separate grants with widely varying terms. In the detailed presentation by states in the latter part of this chapter the aim has been to set forth the present policy of leading states and cities, as shown in existing statutes and in recently granted franchises, while only more general statements are made in relation to earlier franchises which are still in force. In this presentation only questions bearing upon the fundamental relations between the street railway companies and the governing authorities or the people are taken up. The most important subjects covered are the methods of granting franchises and their duration, the regulation of fares, and the requirements regarding compensation for franchise privileges. No attempt is made to present the less essential features of the law regarding the organization, management, and powers of street railway companies, or the details of local ordinances regarding car schedules, methods of construction, safety regulations, and the like.



### I.

#### METHOD OF GRANTING FRANCHISES.

*Authority of state and municipal governments.*—Street railway companies, like other corporations, derive their charters, which give them the right to exist and which regulate in a general way their internal government, from the state, either through general or special statute. The privilege of occupying a specific street or highway usually requires further authorization, and it is this authorization which is designated by the term "franchise" in the more limited sense. In some state constitutions the legislature is expressly prohibited from granting the use of the streets and highways without the consent of the local governing authorities, while in nearly all other states the practice of the legislature is to give the local governments control in this respect. This control involves ordinarily the right of the local authorities to impose such conditions as they may see fit at the time the franchise is granted. In the detailed presentation of street railway law in section VII only deviations from this rule are mentioned.

So far as recent practice is concerned, such deviations are mostly confined to the New England states, where a large proportion of the street railway companies have been chartered by special acts of the legislature. Many of these charters have given to companies the use of the streets with no provision for interference by the local authorities further than was necessary to regulate the details of construction and make them conform to the grade and surface of the streets. This policy has been particularly common in Connecticut and Rhode Island. In Massachusetts the railroad commission must approve all grants of franchises by local authorities; moreover, where a street railway is designed to serve several towns or cities, those towns which favor a franchise may appeal to the state board of railroad commissioners if any one of the local governments withholds its consent. This latter proviso was inserted in the law

on the recommendation of a special committee on the relations between cities and towns and street railways, which reported to the Massachusetts legislature in 1898.[1] In New York, Connecticut, Rhode Island, Maine, New Hampshire, and one or two other states the state railroad commission has also some control over the construction of street railways, but this control is of a less thorough character than in Massachusetts.

It is quite common for the state, by general or special statute, and sometimes by its constitution, to regulate the procedure which must be followed by the local governments in granting franchises to street railway companies. Often these regulations apply to other classes of public utilities also. The corruption which has often characterized the action of municipal authorities in bestowing franchises has been one of the motives for the adoption of safeguards concerning procedure.

In many cases a larger proportion of the city council, or other local governing body, is required to pass a franchise ordinance than to pass ordinances on most other subjects. Provisions of this character are so common that, with a few exceptions, they have been omitted in the detailed statement in another part of this chapter. One of the most stringent regulations concerning the procedure in granting franchises is found in the New York city charter. Not only is the vote of three-fourths of all the members elected to the city council required, but the grant must also be approved by the board of estimate and apportionment, a small body chiefly composed of executive officials, which has the main control over the city's finances. This board is directed particularly to inquire into the value of the privileges conferred and the adequacy of the compensation offered for them. A precisely similar method is prescribed in the charter of the city of Baltimore.

In most states the law does not distinguish between ordinary urban street railways and interurban electric lines, either as to the methods of securing privileges or as to the general regulation of business. In those states where interurban railways are most highly developed, however, they have either been placed under the same laws as steam railways or under special laws more akin to those governing steam railways.

*Consent of voters or of abutting owners.*—The movement in favor of "direct legislation" has led to the requirement, in various states and cities, that franchises shall be submitted to popular vote, either in all cases, or on petition of a certain proportion of the voters. Such use of the referendum is most common in the Western states. In Colorado, South Dakota, and Utah, for example, all municipal ordinances are subject to the referendum on petition, or the optional referendum, as it is commonly called. The same requirement is found in the San Francisco charter, and in the charters of various other cities. In Nebraska and Arizona all public franchises in cities must be submitted to popular vote; in Montana and Colorado to the vote of the taxpaying electors. In Iowa one-fifth of the voters in any city may require any franchise to be submitted to popular vote. The optional referendum with reference to franchises exists in incorporated towns in Indiana, in Parkersburg, W. Va., by its new charter, and in various other places. In Detroit a local ordinance provides that proposed franchises shall be submitted to popular vote, but such vote is purely advisory, not binding. Provisions for popular vote on franchise grants are for the most part of recent origin, and there is comparatively little experience as to their practical working. The fear has sometimes been expressed that the people will be unduly hostile to the corporations, and will ignorantly deprive themselves of needed facilities by refusing franchises altogether, or by insisting upon impossible conditions.

Somewhat similar to the requirement of a popular vote for the grant of street railway franchises is the provision in a number of states that the consent of the owners of abutting property shall be secured. Usually the provision is that the owners of more than half of the frontage must give their consent. This is true, for example, of all cities in Colorado, Missouri, Nebraska, New Jersey, and Ohio, and of cities of more than 40,000 inhabitants in Kansas. The same requirement existed in Illinois prior to 1899. In Louisiana one-half in number of the owners of abutting property and the owners of one-half in value of the property must consent to the construction of the railway. In New York the owners of one-half in value of the property must consent, but there is a proviso that if the necessary consent can not be obtained appeal may be taken to the courts, which shall decide whether there is public necessity for the railway. This proviso was enacted in recognition of the fact that the rights of the people, as a whole, are paramount to those of the property owners upon the streets directly concerned. In some cases, moreover, the owners of property, particularly if the streets were peculiarly desirable or necessary for the construction of a general railway line, or of a connecting link in a system, might take unfair advantage of their position to demand excessive compensation from the railway company as a condition of their consent. This does not imply that any compensation whatever would necessarily be excessive, for it is entirely proper that a railway company should compensate property owners for actual damage to their property or decrease in its value, and provisions of this sort are almost universally found in state laws or in local

[1] Report of the special committee appointed to investigate the relations between cities and towns and street railway companies, 1898. This report presents, among other valuable matters, a summary of the legislation regarding street railways in the various states and of the franchise provisions in the leading cities. It is frequently referred to in the following discussion, being cited, for convenience, as "Massachusetts Report."

ordinances and franchises. In Massachusetts the rights of owners of abutting property are protected by provisions for appeal to the state railroad commission.

*Competitive bidding for franchises.*—During recent years it has become quite common, with a view to obtain more favorable terms, to offer franchises at public competition. This requirement often applies to other classes of public utilities as well as to street railways. In California, Nevada, Kentucky, and Virginia the general state laws require competitive bidding, but contain no provision specifying the character of the bids, which apparently might, at the discretion of the local authorities, be either in the form of lump sums or of annual payments. In New York and Louisiana the bids must be on the basis of a percentage of the gross annual earnings. In Ohio the franchise must be granted to the bidder offering the lowest rates of fare. A similar method is required by the individual charters of certain cities, and in a few others it has been adopted voluntarily by local authorities. The city ordinarily reserves the right to reject all bids. In Virginia the local authorities may, if for any reason they deem it to be for the interests of the people, grant the franchise to some other than the highest bidder, but they must give their reasons for the grant in the franchise ordinance.

In most states there has been as yet comparatively little experience with the working of the method of competitive bidding for public franchises. The method has, however, been employed long enough in California, New York, and Ohio to afford a fair basis for a judgment as to its success. In two or three instances there has been active competition for street railway franchises in New York city, but for one reason or another the franchise grants made as a result of high bids have been set aside or the railways authorized have never been built.[1] In one case the bids for a certain extension were run up until seventy times the total gross receipts of the proposed new line were offered in payment for the franchise. This absurd procedure, which was obviously not in good faith, was stopped by an injunction. Finally the franchise was sold for 100 per cent of the gross receipts, but the road has not yet been constructed. In fact the highest compensation which has actually been paid to the city treasury as the result of competitive bids for street railway franchises is 8 per cent of the gross receipts.[2] It is probable that competition had something to do with enabling the city of Columbus to obtain unusually low fares as a condition precedent to the extension of the franchise of the leading railway in that city.

Generally speaking, however, there has been little or no competition for franchises, and the local governments have obtained no more favorable terms than were prescribed as a minimum by state or local legislation. The reason is obvious. The proposed franchise is almost invariably petitioned for in the first instance by a duly organized corporation, which asks the right to occupy specifically named streets and which has carefully considered, in advance, construction plans and probable financial results. Even when a considerable period of time is allowed for others to investigate the proposed plan and to estimate the value of the franchise, these possible competitors are at a great disadvantage as compared with the original promoters. It often happens that there are few people in a city who are familiar with the street railway business and at the same time in command of the necessary capital. Effective competition is still less likely when the proposed railway is in the nature of an extension or outlying line, the success of which will depend almost wholly upon cooperation with existing lines. The process of consolidation among street railways has gone so far in most large cities that there is only one important system in existence with which a new railway can be connected.

The method of competitive bids is apt to prove of greater value when applied to renewals of the franchises of existing railway systems. It has already been so applied in a few instances, and under existing laws will apply to many such renewals in the future. Of course the old corporation has a great advantage in the competition for a renewal of the franchises; but the value of the privilege is so much better appreciated and so much more easily measured than in the case of a new railway that other capitalists will often stand ready to offer such competition as will at least compel the present owners to make important concessions to the people. The best results, however, are secured where the system of competitive bids is supplemented by careful bargaining on the part of the local authorities. This method is provided for in the charter of New York city. If the board of estimate and apportionment receives no satisfactory bid for a franchise, it becomes its duty to seek better terms by negotiation. In two or three cases the efforts of the board have resulted in securing a compensation for street railway franchises considerably in excess of that originally offered.[3] The New York system in this respect has been copied by Baltimore.

## II.

### DURATION OF FRANCHISES.

State constitutions or laws usually, though by no means always, limit the duration of corporate charters of all classes. Such limitations, however, are ordinarily of a formal character, and unless some action to the contrary is taken by the state legislature at the

[1] See G. Myers, in "Municipal Affairs," March, 1900, page 150 ff.

[2] For the Metropolitan Crosstown Railway. See Report of the Comptroller of the City of New York, 1902; Myers, loc. cit., page 162.

[3] Myers, loc. cit., page 155.

time of expiration, a charter can usually be renewed by a simple procedure on the part of the stockholders of the corporation. Nevertheless, the limitation on the duration of the charter offers to the state the possibility of imposing new restrictions if it so desires.

Most states, including those which limit the duration of corporate charters, provide in their constitutions that the legislature shall have the right to repeal or amend any general or special incorporation law if passed subsequent to the adoption of the constitution. This provision has been inserted in view of the judicial doctrine announced in the famous Dartmouth College case that, in the absence of such provision, an act conferring privileges upon a private corporation constitutes a contract on the part of the state. It is probably safe to say that nearly all important street railway companies in the United States hold charters which are either limited in duration or subject to amendment or repeal by the state legislature. In case of such amendment or repeal, however, the courts are disposed to require that regard be given to vested property rights, and the legislature is subject to limitations in those states whose constitutions prohibit special and local legislation, and in which, accordingly, changes must apply to an entire class.[1]

Limitations on the duration of local franchises are another matter. State constitutions or laws seldom reserve to the state or local authorities the right to terminate a franchise, or to revise its provisions during the prescribed term, nor have the local authorities in granting franchises ordinarily reserved this right.

The most important exception to the statement just made is found in Massachusetts. For a long time it has been the policy in that commonwealth to grant street railway and other franchises for an indefinite term, subject to revocation either by the state or by the local governments. The Massachusetts committee on street railways of 1898, whose report has already been referred to, characterized this system as utterly illogical in principle; but asserted that, because of the conservatism of the governing authorities in the state, it had not resulted, as might have been expected, in hindering the development of public service corporations. The committee found, on the contrary, that the street railway companies preferred this plan to one by which their franchises would be terminated after a period of years. The law was, however, amended on the recommendation of the committee, so as to require the approval of the railroad commission for the revocation of a "location."

Many street railway franchises, particularly those of early date, are perpetual, and there is no state or local provision under which they can be revoked or amended. Where, however, a corporation whose charter is subject to revocation or amendment holds such an unlimited franchise, the state legislature can virtually annul it, or change the terms of the franchise, through its control over corporate existence. Even if both the charter and the franchise of a public service company are unlimited in duration, the state may, subject perhaps to certain self-imposed limitations, exercise, directly or through local governments, its right of eminent domain to purchase the property for public use. The payment in such a case would ordinarily include not merely the tangible value but the full franchise value. Several state constitutions contain clauses providing that the public authorities shall always reserve the right of eminent domain over the property and franchises of corporations. Such provisions, however, merely declare a generally recognized principle. A constitutional amendment in Colorado, adopted in 1902, confers upon municipalities the right of eminent domain over "public utilities," and similar provisions are found in the statutes of a few states.

Franchises which are perpetual, and not subject to modification by the local authorities, are still permitted by the state laws of New York (except as regards certain cities), New Jersey, Pennsylvania, Missouri, Indiana, all of the New England states, and a few others. Many of the most important franchises in the largest cities of the country are perpetual, and can not be modified by the local governments. In a majority of states the present policy is to limit the duration of street railway franchises by state law. The limit of life is ninety-nine years in Louisiana (the law applying only to parishes), fifty years in Arizona, Idaho, and second-class cities of New York, and by special act (the constitutionality of which is in litigation) in Cincinnati, Ohio; thirty years in Michigan, Virginia, Alabama, and Florida; twenty-five years in Ohio, Iowa (in cities under special charters), San Francisco, Cal., St. Paul, Minn., and Portland, Oreg.; twenty years in Illinois, Kentucky, Nevada, South Dakota, and Montana; and ten years in Wyoming. There is apparently a tendency to shorten the duration of franchises, the more recent enactments usually prescribing the shorter periods. In many cases cities have limited the life of franchises where no state restriction existed, or have fixed terms shorter than those prescribed by state law.

One modification of the limited franchise is that which contains in the original instrument provision for renewal with revised terms. By the charter of New York city and that of Baltimore, the original grant of a franchise, which is limited to twenty-five years, may provide for renewal for a further period not to exceed twenty-five years, with a readjustment of the conditions of the contract, to be made by bargaining or by appraisal. In Cincinnati the fifty-year franchise, passed under authority of the act above mentioned, permits the city to change the fares after twenty years and again fifteen years later, but at no other times. Such an arrangement increases the security of the street railway com-

[1] Central Trust Company *v.* Citizens Street Railway Company, 82 Fed. Rep., 1.

pany and renders it more willing to introduce the best and most expensive construction and equipment.

Ordinarily, the local authorities are permitted to renew franchises at their expiration by the same procedure as is required for original grants.

Usually the laws limiting the term of franchises contain no provision regarding the disposition of the tangible property of the holder of the franchise at its expiration. Most franchises for street railways also have no provision on this subject, except the requirement that at the expiration of the franchise the company shall remove its tracks from the streets. In practice, such an arrangement has less of a tendency to check improvements than might be expected. Before the expiration of the old franchise the local authorities very frequently make new grants to existing companies, and the compensation demanded for these grants has not, as a rule, been excessive. Corporations have often anticipated such liberal treatment and have made improvements in their property even near the close of the term of the franchise. In some cases, where changes in methods of traction, consolidations, or extensions of existing railway lines have been desired, the local governments have granted new franchises long before the expiration of the old ones. By the laws of a few states the extension or renewal of franchises is not permitted until within a short time before the expiration of the existing grant. This restriction is designed to prevent corruption, but it would seem the part of wisdom to modify it in such a way as, under careful restrictions, to permit new grants when necessary to take advantage of improved methods or to secure needed extensions.

The difficulties growing out of limited franchises have led to the adoption in several recent statutes of provisions for compensating the holders for the value of their tangible property at the expiration of the franchise term. Such an arrangement seems the more desirable in cases where local governments are by law prohibited from granting renewals of franchises directly to the existing companies, and are either required to take over the property or to dispose of the franchises by competitive bids. In Indianapolis, Ind., Baltimore, Md., Portland, Oreg., and elsewhere, municipal charters, or other state laws, provide that if the city takes possession of a street railway at the end of its franchise it must pay the appraised valuation of the tangible property, but must pay nothing for the franchise itself. By general law in Virginia and by the Greater New York charter it is provided that the original franchise must specifically state whether, at its expiration, the city shall pay for the tangible property or shall receive it without compensation. In San Francisco, on the other hand, the city charter requires that the property of all corporations to which franchises shall hereafter be given shall revert to the city without compensation at the end of the prescribed period. In Indianapolis, Ind., and Portland, Oreg., where competitive bidding for the renewal of franchises is required, it is specifically provided that, if the grant is made to another person or corporation, the new grantee must buy the tangible property of the former holder at its appraised valuation. The same requirement is probably intended in the Virginia law and in the Baltimore charter, by which competitive bidding is also required. An arrangement of this sort has the great merit that it largely removes the discouragement to improvements which is otherwise characteristic of limited franchises.

## III.

### REGULATION OF STREET RAILWAY FARES.

In a considerable number of states the legislature has enacted laws limiting the fares of street railways throughout the state or in individual cities. With few exceptions the maximum fare thus fixed is 5 cents. Thus, in New York no railway built after 1884 may charge more than 5 cents for a ride over its lines within the boundaries of any municipality, a provision which is held to require the issue of transfers on its lines wherever they are necessary to reach the desired destination. In nearly all local franchises limitations are imposed in advance upon the fares. Usually neither the state nor the local government reserves the right to change these limitations during the term of a franchise. This is so generally true that in the detailed presentation by states only departures from this rule are noted. In a large majority of cases the maximum fare provided in local franchises is 5 cents, and it has not been deemed necessary to mention the limitations unless lower fares are prescribed.

Several states, by constitution or statute, have reserved to themselves the right to regulate street railway fares at any time. This is true in New York as regards all railways built since 1884. Moreover, it is generally held that unless the state clearly waives or limits this power, the general authority to regulate common carriers and their charges gives the state this power over street railways in any case. The general municipal corporations act of Illinois confers the power to regulate hackmen, truckmen, and "all others pursuing like occupations." This has been held by the supreme court of Illinois to permit cities to fix street railway fares, and Chicago and several other cities have accordingly done so. (See page 42.) Provisions of somewhat similar character are found in the special or general municipal laws of various other states, but they have not usually been interpreted as applying to the street railways.

The cities of Nebraska and the cities of more than 100,000 inhabitants in Missouri, by the general laws of these states, and the city of San Francisco by its municipal charter, have the right to regulate railway fares at any time. All these cities, however, with the excep-

tion of San Francisco, where such waiver is expressly prohibited, could probably waive the right at the time that the franchise is granted.

In Massachusetts the city council or board of selectmen of a town may petition the state board of railroad commissioners to revise the fares of any company, but it may not reduce them below the average fare charged by other companies in the state operating under similar conditions. With the aid of the reserve power of the legislature in this state it is possible that, at some future time, fares may be reduced either generally or in individual cities; but as yet there have been no important instances of the exercise of this authority.

In Part I, Chapter III, will be found a summary of the facts with regard to street railway fares in the United States. In many, if not in most instances where a fare of less than 5 cents is found, it has been secured by the action of the local governments, usually being demanded as a condition precedent to the grant of franchises, renewals, or additional privileges. In some instances, however, companies have voluntarily reduced their fares, and often they have, on their own initiative, granted or increased transfer privileges. The situation regarding fares in Columbus and Cleveland, Ohio, and Detroit, Mich., more fully described on pages 142 and 145, illustrates particularly the activity of local governments in seeking to reduce fares.

## IV.

### COMPENSATION FOR FRANCHISE PRIVILEGES.

The growing recognition of the value of the privileges conferred upon street railway companies, particularly in the larger cities, is manifested in the many recent laws and franchises which require special payments to the local governments. Payments which are distinctly designed as a compensation for the peculiar privileges bestowed are in principle sharply differentiated from ordinary taxes upon the property or business of street railways, which seek merely to obtain from them a contribution equivalent to that demanded from other forms of property and business. Taxes in the strict sense are imposed by virtue of sovereign power and are independent of the terms of charters and franchises; while, generally speaking, payments for franchise privileges rest upon contract with the corporations. It may readily happen, however, that the ordinary taxes on street railways in some cities represent a relatively heavier burden than the taxes and the franchise payments combined in other cities.

It is not the purpose of this report to enter fully into the complex subject of general taxation as applied to street railway corporations. In view of the interest which attaches to the methods of taxing such corporations in Massachusetts and New York, however, a brief description of them is given elsewhere (pages 141 and 144). In Part I, Chapter V, will be found general statistics showing the contributions of railways to the state and local governments, but these statistics do not distinguish between taxes proper and special franchise payments.

A considerable difference of opinion prevails as to whether a local government more truly promotes the public welfare by obtaining from street railway corporations, in return for franchise privileges, low rates of fare for railway patrons or larger cash payments into the city treasury which will reduce the burden of general taxation. The same question arises in fixing the charges of a public utility of any class which is operated by a municipality directly. The opinion seems to be gaining ground, as is seen in various laws and franchises of recent date, that the social benefits which accrue from low fares on street railways are so great that the public interest is better served by seeking reductions in charges than by seeking high financial compensation. As a matter of fact, in most of the important cases where special franchise payments of significant amount are required from street railways, the fare charged is 5 cents, while in the cities where lower fares are found, compensation for franchises is seldom paid to the public treasury.

The authority of the state or local government with regard to special franchise payments rests on essentially the same principles as the authority with regard to fares, and is more fully discussed below. However, the power is not usually reserved, either by state law or by the terms of franchises, to change the requirements concerning compensation during the life of the grant.

*Car licenses.*—The statement just made does not always hold true with regard to license fees, the local authorities being sometimes empowered to collect such fees at rates which they may prescribe from time to time. License fees are usually a fixed amount per car, sometimes per pole or per mile of track. The theory is that the license fee, like that, for example, on hackmen, hucksters, and those pursuing similar occupations, is intended for regulation rather than for revenue.[1] Presumably the courts would not uphold a municipality in an attempt to impose an exceedingly heavy fee. Indeed, the state law or the local franchise ordinance often limits the amount of the license fee.

License fees of one kind or another are collected from street railway companies in a large number of cities. They are particularly common in the Southern states, where licenses are commonly employed as a method of taxing all kinds of occupations. In New York, Chicago, and Philadelphia the car licenses are $50 yearly and in St. Louis $25. In most other important Northern cities the fees are lower. In Cincinnati, at least formerly, and in one or two other places the license is based, not on the number of cars, but on the total length of the cars used, the idea being that a large

[1] See, for example, the New Jersey law referred to on page 143.

car should properly pay more than a small one. In some cases car licenses are based on the total number of cars owned, in others on the average number in use daily during the year. The latter method would seem to be preferable, especially where a different type of car is used for summer travel, since such cars lie idle for a good portion of the year. An objection to car licenses lies in the possibility that they may reduce the number of cars operated, to the disadvantage of the patrons of the railway.

In a few states it is common for local governments to charge an annual license fee on the poles of trolley railways. This practice exists, for example, in several cities of Pennsylvania.

*Paving and care of streets.*—It is an almost universal practice to require street railway companies to bear the expense of paving or surfacing the space between their tracks in a manner corresponding to the rest of the street or highway. Usually the company must also pave a certain space outside of its tracks, ranging from 9 inches to 2 feet. Where such requirements exist, the railways are generally obliged also to maintain the pavements in repair. In many instances, moreover, the railway company is compelled to clean the street space occupied, to remove snow and ice from it, and sometimes to sprinkle it. All of this work is often done by the local authorities, the expense being collected from the corporations. Provisions regarding the paving and care of the street surface occupied are so common and so nearly uniform that they are not ordinarily mentioned in the detailed presentation in section VII of this chapter.

The most important deviations from the ordinary practice in relation to the paving and care of streets are found in Massachusetts and Philadelphia. The Massachusetts statute of 1898 abolished all former requirements in this respect, and substituted for them an annual tax on gross receipts, payable to the local authorities. In Philadelphia the street railway companies are obliged to pave and maintain, though not to clean, the entire surface of the streets which they occupy. The companies have spent several millions of dollars in paving, and the interest charges on these investments, together with the cost of maintenance of the pavements, represent virtually a larger compensation for franchise privileges than is required in most other American cities.

Occasionally small towns require street railway companies to furnish free street lights, and it is quite common to require free transportation for policemen or other classes of municipal employees.

*Percentage of gross receipts.*—The most common form of special compensation for franchise privileges, aside from car licenses and paving requirements, is the percentage of gross receipts. Apart from those cases in which the law provides for the sale of franchises to the bidder offering the largest percentage of gross receipts, there are many others in which street railway companies are obliged by state law, or by local franchise ordinances, to make such payments. Thus in New York city, by state law, all surface railways built after 1884 must pay at least 3 per cent of their gross receipts to the city during the first five years of their franchises, and at least 5 per cent thereafter. The rate of 5 per cent is found also in Richmond, Va., Providence, R. I., Newark, N. J., and one or two other cities. In Cincinnati, Ohio, the company pays 6 per cent of its gross receipts into the city treasury, and in Baltimore, Md., no less than 9 per cent, the rate in this city having been originally 20 per cent. In Buffalo the leading company pays 3 per cent. In St. Louis, Mo., varying percentages are required by different franchises and the total revenue derived by the city is considerable. In most other cities and towns which have adopted this method the percentages actually received in addition to the ordinary taxes are less than 3 per cent, but in some places recent charters or ordinances require larger payments for franchises hereafter granted.

*Other forms of payment.*—Quite frequently, either as the outcome of competitive bidding or of bargaining with a single corporation, cities have obtained lump payments as compensation for new franchises or additional privileges. In other cases, railway companies have been compelled to pay fixed annual sums prescribed in advance in the franchises.

Occasionally a provision is found for an annual payment based on profits rather than on gross business. Thus, in the state of Massachusetts and in the city of Philadelphia, railway companies are required to pay a certain proportion of the excess of their dividends if the latter exceed a fixed rate. In Des Moines, Iowa, a percentage of net earnings is demanded, and in Topeka, Kans., one-tenth of the excess of net earnings over 10 per cent on the investment. In none of these cases is any important revenue derived by the local governments. The mayor of Des Moines states that the railway claims never to have had any net earnings. In fact, as has been often the experience of states in levying taxes based on net earnings or dividends, this method, which is the most just in principle, is very hard to apply satisfactorily in practice, because of the difficulty of correctly ascertaining the net earnings. Payments based on dividends, particularly if they aim only at the excess of dividends above a certain rate, are unsatisfactory unless the issue of bonds and of stocks be properly regulated.

## V.

### GENERAL CONSIDERATIONS REGARDING THE REGULATION OF FARES AND COMPENSATION.

The foregoing shows in street railway legislation of recent date a growing feeling manifested that it is essential to the protection of the public interests that local governing authorities should retain some control

over the fares of street railways, or over their financial obligations to the public treasury, which is capable of exercise either continuously or at frequently recurring intervals. It is argued that increase in population, or improvements in methods, may render a fare or compensation which is reasonable to-day unreasonable in the future, and that the conditions may change even within a comparatively short time. It is admitted that companies often find it necessary, through extensions of their lines or otherwise, to increase constantly the quantity and quality of the service which they offer to the passenger; but it is maintained that, even so, it may happen that the profits of the business, under prevailing terms, become excessive.

It would seem, however, that, if the authority to regulate the fares and the payments of street railways is to be thus retained, the practice should be guarded by certain well-defined rules which will protect the interests of the railway companies as well as those of the people. Not only is the street railway company justly entitled to legitimate return on its investment, but in the long run the city will deprive itself of the best service unless it permits such a reasonable return. Such rules need to be applied both where continuous or recurrent regulation is attempted, and where new franchises or extensions of old franchises are granted. As already suggested, provision for competitive bidding in granting franchises can not always be relied upon to secure reasonable terms. The city must be prepared to bargain with the street railway company, and to do this satisfactorily its officers must possess proper knowledge and must properly recognize the rights of both parties.

*Publicity of accounts.*—It has been repeatedly urged that a fundamental prerequisite to the intelligent and just regulation of street railways, whatever be the procedure by which such regulation is attempted, is an accurate knowledge of the financial conditions of the business, both as to cost and value of property and as to operating expenses. The legislature of Ohio recently enacted a statute of great significance in this connection. It requires uniform methods of accounting and publicity of accounts, both on the part of local governments of all grades and on the part of local public service corporations.[1] The recent charters of San Francisco, Cal., and of Portland, Oreg., likewise demand complete publicity of the financial affairs of corporations holding municipal franchises, and some measure of publicity with regard to such corporations is demanded in a few other less important instances.

*Regulation of capitalization.*—Closely allied with publicity is the regulation of the issue of capital stock and bonds by public service companies. A considerable proportion of the income derived from the charges of street railways must always go to interest and dividends, and the public has a right to demand that these returns should be based on a reasonable capitalization. While this result can be secured in some measure through publicity in construction and equipment accounts, the actual limitation of stocks and bonds is simpler and more effective. The legislation of Massachusetts on this subject has attracted much attention. In that state, no securities may be issued by a street railway company (or by steam railways), except on the approval of the board of railroad commissioners. Only such amounts may be issued as the board may declare reasonably requisite for the specific purposes set forth in the application of the company, and these purposes must be stated in detail in the resolution of the commissioners authorizing the issue. A further provision declares that, when new stocks are issued by an existing company, they must be offered to the present stockholders, not at their par value, but "at not less than the market value thereof at the time of the increase," as determined by the railroad commissioners, "taking into account previous sales of stock of the corporation and other pertinent conditions."[2] In other words, the state undertakes to provide that the corporation shall get as much money for its shares as they may be expected to be worth on the market, and to guard against the distribution of stock dividends. When a consolidation of street railways is made, the same painstaking care is used to prevent the issue of securities in excess of the actual value of the property. Similar provisions are found in Massachusetts with regard to other classes of public service corporations. In Rhode Island, also, the issue of stocks and bonds by street railway companies is subject to the control of the railroad commission. In most states and cities, however, no attempt has been made to restrict the capitalization of street railways.

*Sliding scale systems.*—Sliding scale devices of various sorts are sometimes introduced into street railway laws and franchises for the purpose of securing an automatic adjustment of fares, or more commonly, of compensation for franchises, so that the people shall share in the advantages of an increase in earnings or a reduction in operating expenses. A greater degree of stability is thus assured to the corporations than they would possess if the public authorities reserved the unrestricted right to revise fares or franchise compensation at any time.

A rough form of the sliding scale which is quite often found, requires the fares to be reduced, or the compensation to the local government to be increased, by prescribed amounts, at certain intervals of time. This is based on the assumption that gross earnings and net profits will increase with the lapse of time. The requirement regarding franchise payments in the new San Francisco charter is a prominent illustration.

[1] Laws of Ohio, 1902, page 511.

[2] Acts of Massachusetts, 1894, chapters 462, 472.

Another form of sliding scale is based on the contingency of an increase in the gross receipts of the railway, either as a whole or per mile of track. Thus, by the franchise of the Columbus Railway Company, fares must be reduced materially when the gross receipts reach $1,750,000 annually. By state law in Wisconsin, and by some of the franchises in New York city and elsewhere, the percentage payable to the city increases as the gross receipts increase. In other countries more elaborate regulations of this sort are found than in the United States. For example, by the franchise of the Montreal Street Railway Company, granted in 1892 for thirty years, the company is required to pay to the city annually 4 per cent of its gross earnings up to $1,000,000; 6 per cent on earnings in excess of $1,000,000 but less than $1,500,000; 8 per cent on earnings from $1,500,000 to $2,000,000; 10 per cent on earnings from $2,000,000 to $2,500,000; 12 per cent on earnings from $2,500,000 to $3,000,000; and 15 per cent on all earnings over $3,000,000. Toronto has a very similar arrangement.[1] The arrangement in these cities, by which the higher rate is applied only to the excess above the specified amount of earnings, serves to remove the strong incentive which might otherwise exist to keep down earnings, at least for a time.

The assumption underlying a sliding scale of this sort, that, as the gross receipts of a railway system increase, the rate of profit on capital invested increases correspondingly, is not always a correct one. Even an increase in gross earnings per mile of track may result from a corresponding increase of investment in improving trackage or equipment. It would seem that, if a sliding scale regulation of charges or franchise compensation on the basis of gross earnings is to be attempted, a proper adjustment should be made whenever the railway company extends its lines or otherwise increases its investments materially.

It requires no argument to show that the theoretically ideal basis for the determination of just fares or franchise compensation is the net profits of the business rather than the gross earnings. If the actual profits could be correctly ascertained, a sliding scale based upon them would furnish the simplest and most satisfactory method of adjusting fares and payments to the city. Any other method of automatic adjustment must be largely arbitrary and is bound to work some injustice either to the people or to the corporations.

As far as can be ascertained there is no instance in the United States where a franchise provides for a reduction of street railway fares as profits increase. The most familiar example of such a sliding scale in Europe is found in the franchise of a leading London gas company, which is required to reduce the price charged as the rate of profit increases, with the result that the people share with the corporation in the gain due to added consumption or reduced operating costs. In a few cases in this country a sliding scale based on net profits or dividends has been adopted to determine the compensation to be paid to local authorities for franchise privileges.

The most conspicuous illustration is the Massachusetts act of 1898, by which any street railway company which has from the beginning of its corporate existence paid in the aggregate dividends equal to 6 per cent on its capital stock, and which is now paying more than 8 per cent, is required to pay a tax, which should more properly be called a franchise payment, equal in amount to the excess of the dividends above that rate. In other words, when the profits exceed 8 per cent the excess must be equally divided with the municipality. In view of the careful restrictions upon capitalization in Massachusetts it is quite possible that this arrangement may ultimately result in considerable revenue to the local governments, though it has so far brought little or nothing. It was urged by the special committee on whose recommendation this law was enacted that the provision for a division of the excess of profits between the corporations and the government was "not subject to the criticism, which appears to be sound, that a limitation of dividends hampers enterprise and improvement. Where a corporation is not limited in the amount of dividend it may earn, but is simply required to pay over a sum equal to the excess of dividends actually paid, over a fixed and reasonable percentage on its capital stock, it will be constantly spurred to render such service that its profits will increase. Being a public service corporation, owned and operated for private profit, it seems just, and in accordance with sound principles, that when the private ownership has received a reasonable return upon its investment, the public should share, through a form of special taxation, in the increment of profit, provided it can do so without the danger of offering an inducement to those in control of the property to stint or conceal their profits."[2]

Foreign municipalities have often adopted sliding scales based on net profits for determining the compensation to be paid by street railways for franchise privileges. In Berlin the leading company, besides paying 8 per cent of its gross earnings to the city, divides evenly with it whatever net profits exceed 12 per cent on the capital stock which was outstanding at the time the franchise was granted and 6 per cent on shares thereafter issued. A more complicated arrangement is found in Hamburg. The street railway company pays about 10 per cent of its gross receipts to the city in lieu of charges for paving, cleaning streets, and the like. In addition it pays to the city 25 per cent of its profits above 6 per cent on its capital stock, if the dividend rate is between 6 and 7½ per cent; 30 per cent of the excess

[1] Massachusetts Report, pages 134 and 135.

[2] Massachusetts Report, page 38.

above 6 per cent if the dividend is between 7¼ and 8 per cent, and so on until if the dividend exceeds 10¼ per cent, the city receives 50 per cent of the profits above 6 per cent. In foreign cities where such provisions exist the capitalization of the corporations is carefully regulated.[1]

## VI.

### MUNICIPAL OWNERSHIP.

Legislation permitting municipalities to own and operate street railways has recently been enacted in a number of states. As yet, however, there is no instance in the United States of municipal operation of a street railway. The leading instances of municipal ownership and private operation are the subways in Boston and New York. It was only, however, after private capital had declined to make the necessary investment that the city of New York undertook the financial responsibility for its present subway. The contract between the city and the Interborough Rapid Transit Company (successor to the Rapid Transit Subway Construction Company) required the latter to build the subway and the tracks therein at a cost to the city of $35,000,000, aside from certain expenses for terminals and from the payments for damages to private property. The company then received a lease of the property for fifty years, with the privilege of renewal under modified terms for twenty-five years longer. The lessee was required to equip the system with electric apparatus, cars, etc., and to pay interest on the bonds issued by the city, and, subject to certain limitations, 1 per cent on such bonds annually as a sinking fund. It is expected that the city will ultimately own the subway free of debt, and it will probably then be in a position to lease it at much more favorable terms. The lease of the Boston subway is for twenty years only. The disposition of the majority of the people, both in New York and Boston, appears to be in favor of municipal ownership of subways hereafter constructed, with operation by private companies under lease.

The Massachusetts committee on the relations between cities and towns and street railway companies expressed itself strongly in favor of municipal ownership, but it was still more strongly opposed to municipal operation. "The essential point to which the committee desires to call attention is the distinction here drawn between the ownership of the pavement, and consequent full control of the street, and the running of the vehicle." The committee thought it would be desirable to provide in all future franchises for a reversion of the tracks to the public authorities. It also considered it feasible to take over the property of existing companies under the right of eminent domain, if authorized by statute. The assumption of ownership of the tracks by the local government was not itself, however, to terminate the right of the street railway company to continue operation under lease. The proposal of the committee has never been carried out in actual legislation in Massachusetts.[2]

The principle that the city should at least own, if not operate, its public utilities was adopted by the special commission which framed the present charter of New York city. That law provides that hereafter every franchise for the use of the streets for railway or other purposes must be limited in duration, and that at its expiration the property in the streets shall revert to the city, which is not permitted to dispose of it, but must either operate or lease it. A similar provision is found in the San Francisco charter. In that city all the existing street railway franchises are limited, so that municipal ownership on a large scale seems likely to become an accomplished fact. The San Francisco charter, indeed, specifically declares that it is the purpose of the city ultimately to own all its public utilities, and provides in detail the procedure by which this may be accomplished. There is, however, no specific provision for taking the property of existing corporations by eminent domain, although the city by threatening the construction of competing plants might bring pressure to bear to compel the sale of the existing properties at a moderate price. At a recent election in San Francisco a majority of the voters favored the acquisition of a certain railway, but the two-thirds vote required to authorize the issue of bonds was not secured.

Many other laws authorize municipal ownership and operation of street railways, either in general, or under certain limited conditions. Thus by statute it is often optional for a local government, at the expiration of a franchise, to take over the property. In some, though not in all, laws of this sort, the municipality may operate a railway so acquired. In a number of states the local authorities are empowered to construct or purchase railways, and also, as a rule, other public utilities, and to operate them. For example, this is true generally, or in the case of certain classes of cities, in Illinois, Indiana, California, Oregon, Minnesota, Colorado, and Washington. In Colorado a recently adopted constitutional amendment gives cities specifically the power of eminent domain over existing "public utilities." In some instances where municipal ownership is authorized, a popular vote is required by the statute to secure permission for actual construction, acquisition, or operation. In Illinois an important additional provision is that the fares under municipal operation must be high enough to pay operating expenses, interest, and sinking fund charges on bonds issued for the purpose of acquisition. Systematic methods of keeping accounts are also required by the law of Illinois, the purpose being to make the people acquainted with the cost of operating the railway, and thus give them the power

[1] Massachusetts Report, pages 162 to 183.

[2] Massachusetts Report, pages 30 to 32.

to prevent the public utility from becoming a public burden. The people of Chicago, by a large majority, have voted in favor of acquiring the street railways in that city, and active steps toward accomplishing this object are being taken.

Municipal operation of street railways has become very common in Great Britain and in Germany and is rapidly extending in both these countries. (See pages 150 and 153.) It is probably too soon to express judgment regarding the success of the policy abroad, nor would success there be conclusive evidence of the wisdom of municipal operation in the United States. The street railway service in England and Germany is undoubtedly inferior to that in American cities, but there has been an enormous improvement in the past few years, during which time electricity has been rapidly superseding horse and steam traction. It can not at once be concluded that the inferiority of European railways is due wholly or largely to municipal ownership or even to the strict limitations upon private corporations operating street railways. Probably, however, the limitations put upon private corporations have tended to hamper development much more than municipal ownership has. Even where there is no important public regulation, private enterprise in European countries is often far behind that in the United States, especially as regards technical methods. The density of urban population, particularly on the Continent, where large tenement houses are almost universal in cities, makes street railway transportation less important than in American cities. To be sure, the crowding together is itself in some measure due to the lack of satisfactory street railway facilities, but other more important historical causes have contributed to it.

## VII.

### CONDENSED DIGEST OF STATE LAWS AND LOCAL FRANCHISE REGULATIONS IN LEADING STATES.

*California.*—Under a recent general state law all local franchises must be sold to the highest bidder, apparently cash payment being intended, though probably the city could provide for annual payments or percentages. The law requires that sealed bids must first be made, but it permits the highest bids to be raised by an additional oral bid, with an advance of not less than 10 per cent, and so on.[1] Special provisions regarding franchises are also found in the individual charters of certain cities, particularly in those charters which have been prepared and adopted locally, as permitted by the California constitution. Thus the San Francisco charter of 1899[2] requires the sale of any street railway franchise to the bidder offering the highest percentage of the gross receipts. By this charter also 15 per cent of the voters of the city may, by petition, require the submission of the franchise ordinance to popular vote.[3]

The general state law limits the duration of charters of all classes of corporations, and that of franchises of street railways, to fifty years. A large majority of the franchises reported to the Bureau of the Census run for fifty years, but several are for twenty-five years and a few for other periods. The San Francisco charter declares that no future street railway franchise shall be granted for more than twenty-five years, and that at the expiration of the franchise the plant must become the property of the city, which may lease but not sell it.

A general law of the state limits street railway fares in cities of the first class (over 100,000 population) to 5 cents.[4] The new San Francisco charter provides that the local government shall have the power, under franchises hereafter granted, at all times to regulate rates of fare.[5]

The general state law, in addition to the above provision for the sale of franchises, requires that every street railway shall, after five years of operation, pay 2 per cent of its gross receipts to the local government.[6] Many of the earlier franchises in existence, however, require no special payment. The San Francisco charter provides that the minimum payment to the city on franchises hereafter granted shall be 3 per cent of the gross receipts during the first five years, 4 per cent during the next ten years, and 5 per cent during the last ten years of the grant.[7] Oakland apparently receives no annual compensation, but the city recently sold a franchise for $500 in cash. The mayor of Los Angeles reported that the city had received about $125,000 from street railways during the census year. The state law also requires all street railways to pay car license fees and limits the fee which may be imposed by local authorities to $50 in San Francisco and $25 elsewhere.

The San Francisco charter, besides the above-mentioned provision that street railways established under future franchises shall become the property of the city at the expiration of twenty-five years, further declares that it is the purpose and intention of the people of the city that its "public utilities" shall be gradually acquired and ultimately owned. To this end the city supervisors must, from time to time, obtain estimates of the actual cost of different classes of enterprises. The supervisors shall then enter into negotiations for permanent acquisition, by original construction, condemnation, or purchase, of such public utilities as they may think most important, but they must first consider offers for the sale to the city of plants already existing.

Moreover, 15 per cent of the voters of the city, if at

[1] California Statutes and Amendments to Codes, 1901, page 265; 1903, page 90.
[2] Ibid., 1899, page 242 ff.
[3] San Francisco Charter, article 2, chapter 2.
[4] Civil Code, section 501.
[5] Statutes of 1901 and 1903, above cited.

any time they desire any given public utility to be owned by the municipality, may, by petition, require the supervisors to submit to a general vote of the people a plan for accomplishing the desired object. The adoption of such a measure requires only a majority vote, unless the plan involves a bond issue, in which case approving votes must be cast by two-thirds of those voting.[1]

A vote was recently taken in San Francisco on a proposal to acquire one of the street railway lines, and a majority of the voters were recorded in favor of the proposal; but as the plan involved a bond issue, and less than two-thirds of the votes were cast in favor of it, the proposal was not carried.

*Colorado.*—The general state law requires the written consent of the owners of more than one-half of the frontage on the street concerned before a street railway can be constructed. An amendment to the state constitution (1902) provides that in Denver, or in any other city adopting the provisions of the amendment, franchises of all sorts shall be granted only by a vote of the taxpaying electors.[2]

Several of the earlier franchises granted in Denver are unlimited, but other franchises in this city, and all those elsewhere in the state, are limited to periods of from twenty-five to ninety-nine years.

The laws of Colorado contain no provisions regulating fares or special compensation for franchises, and no important provisions on these subjects appear in local franchise ordinances.

The above-mentioned constitutional amendment of 1902 provides that in Denver, or in any city adopting the provisions thereof, the local government may construct or acquire street railways or other public utilities, and may exercise the right of eminent domain for the acquisition of existing properties. The issue of bonds for this purpose requires a majority vote of the taxpaying electors.

*Connecticut.*—In Connecticut, somewhat exceptionally, all street railways receive from the state legislature not only their corporate charters, but also, by special act in each case, their rights to occupy the streets. Ordinarily the local authorities have no control over the matter, except with regard to the details of adjustment of the tracks to the street grade and other matters of this sort, and even as to these details the railway company may appeal from the decision of the local authorities to the state board of railroad commissioners. The general statute relating to street railways gives the local governments no authority to regulate fares or impose other conditions.[3]

The legislature has made it a practice, in chartering individual street railway companies, to grant them perpetual rights, but under the state constitution corporate charters are subject to amendment or repeal by the legislature.

There is in the state law no general provision as to fares and the special acts for individual railways ordinarily contain no unusual restrictions in this respect.

In Bridgeport, New Haven, and Hartford, the only cities in Connecticut from which reports on this point were received, there is no special compensation to the city for street railway franchises, and the general laws of the state contain no provision on this subject.

*Georgia.*—The legislature of Georgia has provided a general incorporation law for street railways, but the state also grants special charters. Under the general law, the consent of the local authorities is required for the laying of tracks in the street.[4]

The general state law limits the life of street railway charters to thirty years, but the reports of the companies show that the local franchises vary widely in duration. Two franchises, including that of the company in Savannah, are perpetual; two run for twenty years only; while several range from fifty years, or longer periods, up to ninety-nine years.

The general street railway law contains no provision as to fares, and the prevailing rate is 5 cents.

There are no general provisions of law with regard to compensation for franchise privileges. In Atlanta, however, the consolidated railway is required, by the terms of a city ordinance of 1902, to pay to the city 1 per cent of its gross earnings during the first three years, 2 per cent during the next twenty years, and 3 per cent thereafter till the expiration of the various franchises. These percentage payments are in lieu of license taxes, but the company pays the ordinary property taxes. A cash payment of $50,000 was also made to the city at the time of the consolidation.[5] Savannah, in addition to the property tax, requires the payment of a fee of $25 per year on each car and of $100 on each mile of track. These payments, however, do not indicate any policy of securing special compensation for franchise privileges. They are merely part of a general licensing policy which is applied to all classes of business in most of the Southern states.

*Illinois.*—The constitution of 1870 prohibits the legislature from granting the right to use the streets of a city to a street railway company without local approval. The general state law before 1899 provided that local authorities could grant franchises to street railways only upon petition of the owners of one-half of the frontage on the streets concerned. By legislation in 1899 this provision was omitted as regards surface railways, though apparently it is still in force as regards elevated railways.[6]

Corporate charters of all classes are limited to ninety-

[1] San Francisco Charter, article 12.
[2] Mills's Annotated Code, 1891, section 4, page 403; Session Laws of Colorado, 1901, chapter 46.
[3] General Statutes of Connecticut, 1902, chapter 217.
[4] Code of Georgia, section 2, page 180.
[5] Commercial and Financial Chronicle, Vol. 74, page 377.
[6] Myers's Authorized Statutes, 1898, chapter 66 and section 321; Laws of Illinois, 1899, page 331.

nine years and may be amended or repealed by the legislature. The state law of 1874 limited franchise grants to twenty years, though some earlier grants were for longer periods and some were even perpetual. In 1897 the limit was extended to fifty years, and it was also provided that cities might grant extensions of existing franchises for the same period of time. No franchises were granted or extended in Chicago under these laws because of opposition from the citizens. In 1899 the act of 1897 was repealed and the twenty-year limit was again imposed.[1]

A large majority of the existing franchises in Illinois are limited to twenty years, but a considerable number exist with limits of twenty-five, thirty-five, forty, and fifty years.

The date of the expiration of the more important street railway franchises in Chicago has been a matter of much dispute and litigation. These grants were originally made by the city government in 1858, 1859, and 1861, and were limited to twenty-five years. In 1865 the state legislature passed an act extending the corporate charters of the railway companies holding these franchises so as to make their total duration ninety-nine years. This act sought also to extend the local franchises for a corresponding period of time, but the right of the legislature to do so was later disputed by the city authorities. When the question arose in 1883, at the expiration of the period fixed in the ordinances of 1858, its settlement was postponed by agreement, and the city passed a new ordinance extending all the existing franchises for twenty years. This extension expired July 30, 1903, but the companies claimed rights for important parts of their trackage under the ninety-nine-year act of 1865. This contention was upheld by the Federal circuit court in May, 1904, despite the argument that the act of 1865 related to horse railways only, and appeal from this decision is now pending. Meanwhile, however, various franchises granted after 1865 have expired and the city is moving to oust the companies from the trackage covered. There have been many negotiations between the companies and the city with reference to an extension of the franchises, but no agreement has yet been reached as to terms, and apparently a large majority of the people are determined not to permit such an extension under any conditions, but to insist on municipal ownership, if not also municipal operation.

A general provision of the municipal corporations law of Illinois authorizes cities to license and regulate hackmen, draymen, and "all others pursuing like occupations." This provision has been interpreted by the state supreme court as empowering the cities to regulate fares on street railways, and under it Chicago has fixed the maximum fare within the city limits at 5 cents, requiring that transfers be given to passengers who have paid cash fares at any connecting point on the lines of any single company.[2] In Peoria the street railway is required to sell 12 tickets for 50 cents or 100 for $4, and in Rockford and Springfield 25 tickets must be sold for $1, but elsewhere in the state there has been little attempt to reduce fares below 5 cents.

Under the general provision mentioned above, authorizing cities to license those engaged in local transportation, Chicago and Peoria both require street railways to pay a license fee of $50 per car. No other special compensation is at present obtained from the street railways in either of these cities, nor, so far as has been ascertained, in any other Illinois city.

In 1903 the state legislature passed a law which may be adopted by any city on popular vote. If adopted the city may construct street railways and acquire them by purchase, but without the exercise of the power of eminent domain over existing lines. A majority vote of the people is required for the authorization of each acquisition, and before the city can itself operate a railway the approving vote of three-fifths of the electors voting on the question must be secured. The issue of bonds or other obligations also requires a separate popular vote. The charges under public operation must be high enough to provide operating expenses, interest, and sinking fund for bonds issued. The bonds may be issued as a general obligation of the city, or they may be secured by mortgage of the street railway property only.[3] No city owning a railway may lease it for a period of five years or longer without having given opportunity for a protesting petition, which, if signed by a specified proportion of the electors, makes necessary the submission of the matter to popular vote.

In April, 1904, the people of Chicago, by a large majority, adopted this law, and by a separate vote of 120,744 to 50,893 favored the acquisition of all the street railway lines in the city. In view of the complications and litigation regarding the expiration of the franchises of the existing lines it will presumably be some time before the acquisition can be accomplished, and it is possible that a compromise may be effected by which private operation, or even private ownership, may be continued.

*Indiana.*—In cities having boards of public works this body must act in connection with the city council in granting franchises. In incorporated towns 40 per cent of the voters may by petition require any proposed franchise grant to be submitted to popular vote.[4]

The duration of corporate charters of street railway companies under the state law is unlimited, and that of franchises granted by local authorities is not limited by statute; but, with few exceptions, the franchises reported to the Bureau of the Census are limited. The most common period is fifty years, but many have a

[1] See Myers's Authorized Statutes, 1898, chapter 66; Laws of Illinois, 1897, page 282; Laws of 1899, page 331.

[2] See Part I, Chapter III, page 43.

[3] Laws of Illinois, 1903, page 285.

[4] Laws of Indiana, 1899, page 131.

shorter duration. A recent state law authorized Indianapolis to extend the charter of the street railway company in that city for not more than thirty-four years. At the end of that period the city may purchase the lines at an appraised valuation, or may open the franchise to competition for an extension of not more than thirty years. In the latter case the successful bidder, if it is not the existing company, is required to buy the lines of that company at an appraised valuation.[1]

The general street railway law authorizes the companies to fix fares, but this does not preclude the local government from regulating fares by the terms of franchise grants. In various instances local authorities by the terms of franchises have required 6 tickets to be sold for 25 cents. Several years ago a state law[2] was passed establishing a 3-cent fare in Indianapolis, and this was held constitutional by the supreme court of the state under the general power of the legislature to regulate common carriers.[3] But the Federal district court declared that, under the clause of the state constitution forbidding special legislation, the general street railway law, which authorized the corporations to fix fares, could not be amended except by a statute which should apply to all companies.[4] The later law above mentioned, which authorized an extension of the franchise in Indianapolis, required 6 tickets to be sold for 25 cents, or 25 for $1.

There is no general state provision on the subject of compensation to cities for franchise privileges. The extended franchise of the Indianapolis Street Railway Company, granted in 1899, required it to pay to the city $30,000 yearly up to 1925 and $50,000 yearly thereafter. In Evansville the local franchise requires the company to pay 2 per cent of its gross receipts for the first twelve and one-half years and a gradually increasing percentage thereafter up to 4 per cent for the last twelve and one-half years of the fifty-year grant. The payment to the city during the census year was $3,485. In Fort Wayne the company is required by its franchise to pay 2 per cent of its gross receipts and $1 annually on each pole. The receipts are about $8,000 per year. In Terre Haute the company recently paid $78,000 for a fourteen-year extension of its franchise.

Several of the classes of cities distinguished by the state laws of Indiana are authorized to purchase, erect, and operate street railways, but no details as to procedure or other matters appear in these statutes, and there is no instance of municipal ownership.[5]

*Iowa.*—By a general state law of Iowa a popular vote may, on petition of citizens, be required for the granting of a franchise that involves the use of a city's streets by a public service corporation. Interurban railways have the same power that is granted to steam railway corporations for condemning land, but the use of the public highways requires the consent of the county authorities.[6]

The present statute limits grants of franchises, by cities under special charter, to twenty-five years, but no such limitation appears in the general municipal corporations law.[7] The majority of the franchises in the state are for twenty-five years, but several are for fifty years, two or three are for other periods of time, and four or five are perpetual.

The state laws are silent on the subject of fares, but the franchises granted in a number of cities and towns require tickets to be sold at a reduced price, usually 6 for 25 cents.

The general laws of Iowa have no provision on the subject of special compensation to cities for franchises. In Des Moines the railway pays 5 per cent of its gross earnings from mail, express, and freight traffic, and is also supposed to pay a certain percentage of its entire net earnings in lieu of other taxes. The company has always denied that it had any net earnings, and has paid the ordinary property tax only. In Sioux City there is a car license fee of $25. In Davenport and Dubuque no special payments are required from street railways.

*Kentucky.*—By the Kentucky constitution, which dates from 1891 (section 164), local franchises of all sorts must be sold to the "highest and best bidder."

The present state constitution also limits the duration of local franchises to twenty years. Several railways, however, hold part or all of their lines under earlier grants, some of which are perpetual and others for periods ranging from thirty to ninety-nine years.

The state laws do not regulate fares, but the local franchise ordinances in some of the smaller cities require tickets to be sold at a price somewhat less than 5 cents each.

The mayors of Lexington, Covington, and Frankfort reported that no annual payments as compensation for franchises are received, and the same seems to be true in most, if not all other cities of Kentucky; but in Frankfort a franchise was recently sold, apparently for a cash payment.

*Louisiana.*—Recent state laws in Louisiana, applying to New Orleans and to all parishes, provide that street railway franchises may be granted only to the bidder offering the highest percentage of the gross receipts. The general state law regarding franchises in parishes further requires a petition of a majority in number and amount of the abutting property holders.[8] As most cities have special charters, they do not make uniform

[1] Laws of Indiana, 1899, chapters 150 and 180.
[2] Laws of 1897, chapter 132.
[3] Indianapolis *vs.* Navin, 151 Ind., 139.
[4] Central Trust Company *vs.* Citizens' Street Railway Company, 82 Fed. Rep., 1.
[5] Burns's Annotated Indiana Statutes, 1901, sections 3830, 3963, 4117.
[6] Code of Iowa, sections 779 and 956.
[7] Code, sections 767 and 955.
[8] Laws of Louisiana, 1896, chapter 45, section 87; 1902, chapter 188.

requirements as to franchises; nor is the subject covered by the general municipal corporations law of 1898.

All corporate charters are limited by the constitution to ninety-nine years, and the recent law mentioned above establishes the same maximum limit for local franchises in parishes; nearly all existing franchises in cities, however, are for shorter periods. Most of the franchises of the consolidated street railway system in New Orleans expire between 1950 and 1960.

The state laws contain no general provisions as to fares, and the prevailing rate on all lines is 5 cents.

Few, if any, franchises have ever been granted under the recent laws requiring competition. In New Orleans the street railways make no special franchise payments.

*Maine.*—Some railways in Maine are incorporated under a general state law, but others have obtained their charters by special act. Under the general law (as well as ordinarily under special acts) the consent of the local authorities is required for the use of the streets, but appeal may be taken by a railway from the action of the local authorities to the supreme judicial court, and the approval of the state railroad commissioners is also necessary.[1]

There is no general restriction on the duration of franchise grants. Most of those reported are perpetual, but several are limited to from twenty to fifty years.

The general law is silent as to fares, and no unusual provisions appear in special acts or franchises.

On the subject of special compensation to cities the general state law has no requirement. Augusta and Portland reported that they received no special compensation under the franchises granted by them.

*Maryland.*—There is no uniform municipal law or street railway law in Maryland. The companies in Baltimore have been incorporated by special statutes, but their right to use the streets has been granted by local authorities. By the new Baltimore charter[2] the granting of a franchise requires not only favorable action by the city council, but also the approval of the board of estimates, a body composed of 5 officials and having general control of the city finances. This board is directed by the law to inquire diligently as to the money value of the franchise; and while the law provides that future franchises shall be first offered at competitive bidding, the board is supposed to supplement this method, when necessary, by careful bargaining.

The greater proportion of the existing street railway franchises in Baltimore and elsewhere in Maryland are perpetual, but under the constitution the charters of the companies may be amended or repealed by the legislature. The present charter of the city of Baltimore (section 9) limits future franchises to twenty-five years, but the grant may provide in advance for extensions not exceeding in the aggregate twenty-five years, at a fair revaluation. At the expiration of the grant the city may renew it, in accordance with the original procedure for an equal period or the city may take over the plant, either without compensation or at a valuation to be fixed by appraisal (without allowance for value of franchise), as may have been provided in the original ordinance.

The only instance in Maryland in which a city fare of less than 5 cents for adult passengers has been reported is in Cumberland, where 6 tickets must be sold for 25 cents.

Baltimore is quite exceptional in having from the first introduction of street railways insisted upon a large payment to the city for the privilege of using the streets, the city ordinances making the first extensive grants, which date from about 1860, requiring the companies to pay 20 per cent of their gross receipts to the city. Subsequently the payment was reduced by state law to 9 per cent, which is at present required from all the railways in the city. The companies also pay a low car license fee.[3] These special payments—the percentage tax and the license fees—amounted in the census year to $324,398.

The Baltimore charter (section 9) permits the city, at the expiration of the franchise of any public service corporation, to become the owner of the plant and either to operate or lease it.

*Massachusetts.*—The state of Massachusetts is peculiar and interesting in its policy with regard to public service corporations generally. The present state law regarding street railways,[4] which was adopted in 1898, after a careful investigation by a special commission, headed by Charles Francis Adams, jr., conforms in general to the earlier policy, but it contains some important modifications. Many street railways obtain their charters by special law, although a general incorporation law has been in existence for some time. By the act of 1898, as was ordinarily true before, the consent of the local governing authorities is required for the use of the streets, and they may impose such restrictions at the time of the grant as they see fit. The law, however, provides that, on appeal by the owners of more than one-half in value of the abutting property, or by ten owners of such property, the action of the local authorities in granting a franchise is subject to revision by the state board of railroad commissioners, and a later law has required that all "locations" of street railways shall be approved by that board.[5] Where a railway seeks to operate in several towns or cities, part of which have granted a location, appeal may be taken to the railroad commissioners from the refusal of another city or town. In granting to any company the right to extend its railway lines the local

[1] Revised Statutes, 1903, chapter 53; Massachusetts Report, page 96.
[2] Laws of Maryland, 1898, chapter 123, section 37.
[3] See Massachusetts Report, pages 96 and 114.
[4] Acts of 1898, chapter 578.
[5] Acts of 1902, chapter 399.

authorities are prohibited from imposing restrictions or obligations not contained in the original franchise.

All state charters in Massachusetts are perpetual, but are subject to repeal or amendment by the legislature. The state law also permits the local authorities to make perpetual franchise grants, and, without exception, the existing franchises reported are perpetual. The state has, however, reserved to the local authorities the right to revoke the "location" at any time; but under the law of 1898 the board of railroad commissioners must approve such revocation if the company opposes it. The franchises for elevated lines in Boston are not, however, subject to revocation.

The general policy in Massachusetts has been to reserve to the public authorities a continuous control over street railway companies, this control being enforceable by the right to revoke the charter or the franchise. Under the law of 1898 the local governments can not directly change any important provision in a street railway franchise, but they may petition the board of railroad commissioners, which, after a due hearing, may regulate fares. Fares shall not, however, without the consent of the company, be reduced below the average rate charged by other companies for similar service under substantially similar conditions. This last provision would seem in considerable measure to destroy the effectiveness of the regulation of fares. It would be impossible to lower the fares of any railway at all, however excessive they might be, if all companies similarly situated happened to charge equally excessive fares. As yet there has been no important instance of the exercise of this power to regulate fares. The fare for ordinary passengers is almost universally 5 cents.

A Massachusetts law which is very important in its bearing upon charges requires that all issues of stocks and bonds by steam and street railway corporations shall be approved by the board of railroad commissioners, and that they shall not exceed in par value the necessary cost of construction, stock dividends and other methods of stock watering being prohibited. This law has been carried out with considerable vigor, and as a result the street railways are much more conservatively capitalized than those of most other states.[1]

As far as can be ascertained, the earlier franchises and laws in Massachusetts did not ordinarily require special compensation to the local governments for the use of the streets by railway companies, nor have requirements additional to those imposed by general law been inserted in more recent franchises. Massachusetts has for a long time, however, taxed corporations of all classes more effectively than most states. The general tax on street railway companies is based on the value of the track and franchise in excess of the value of machinery, buildings, and other locally assessed property. This "corporate excess" value is determined by the state tax commissioner, and is ordinarily based on the market value of the company's securities. The tax rate on the value thus ascertained is equal to the average rate upon other forms of property in the state as a whole. The tax collected, which is in lieu of all taxes upon the shareholders in the street railway companies, is divided among the local governments throughout the state in proportion to the street railway mileage lying within their limits. This arrangement results in giving to cities and towns within which lie the less profitable street railways an amount greater than they would be able to obtain if they collected a tax directly from the local companies.

In addition to this general tax, the law of 1898 provided a form of special franchise taxation which is quite unusual in this country. Any company that shall have paid dividends since the date of its organization averaging 6 per cent yearly on its capital stock, and that now pays more than 8 per cent on such stock, is required to contribute to the state annually a sum equal to the excess of its dividends above that rate; in other words, to divide its excess profits evenly with the public. The same provision appears in the Boston Elevated Railway charter of 1897.[2] The receipts from the special franchise tax are also to be divided among the localities in proportion to the street railway mileage lying within their limits. As yet no companies in the state pay more than 8 per cent on their capital stock, but several have attained that rate, and the Boston Elevated and several other leading companies already pay 6 per cent. In view of the careful restriction of capitalization, it is probable that as railway profits increase considerable sums may ultimately be received from some of the railways under this provision.

Still another tax in Massachusetts is peculiar in its purpose. In most states the street railways are required to pave the space covered by their tracks and to keep it in repair, sweep it, and remove the snow. In lieu of this requirement Massachusetts has provided a tax on the gross earnings of street railway companies, as recommended by the special commission of 1898. This varies by gradual steps from 1 per cent for railways whose earnings per mile of track are $4,000 or less to 3 per cent for those whose earnings per mile are $28,000 or more. On petition of the company or the local government these payments are subject, at three-year intervals, to revision by the railroad commissioners so as to correspond to the actual average cost of caring for the street surface occupied.

The various taxes and other payments made by the street railway companies of Massachusetts to the public authorities in 1902 were equal to nearly 7 per cent of their gross receipts—a larger proportion than in most other states. Probably about one-fifth of the amount

[1] Acts of Massachusetts, 1894, chapter 462.

[2] Acts of 1897, chapter 500.

paid represents the commutation of the requirement to pave and care for the street surface occupied.

The state laws of Massachusetts do not authorize municipal ownership of street railways. The subway in Boston,[1] however, was constructed and is owned by the city. It is leased to the Boston Elevated Railway Company for twenty years at a rental equal to 4⅞ per cent on the city's investment. The railway company has sought to secure the right to construct and own other subways, but the city has insisted on retaining its control and has defeated the proposed legislation. It is expected that the city will accordingly construct the other proposed subways and lease them.

*Michigan.*—In the cities of Michigan a vote of two-thirds of all the aldermen is required to grant a franchise.[2] In one or two cases in Detroit an unofficial vote of the people has been taken on franchise questions. Such a vote, according to a letter from the mayor's secretary, "was supposed to have a moral effect upon the aldermen." In fact, a recent ordinance of the city requires that future franchises shall be submitted to popular vote, if demanded by 18 members of the city council or by 5 per cent of the voters; but such a vote is purely advisory.

For interurban railways the consent of two-thirds of the owners of property abutting on the roadbed is required,[3] but there is no such provision for urban railways.

Corporate charters of street railway companies under the general state law are limited to thirty years, and the charter may be amended or repealed by the legislature.[4]

There is no state restriction on the duration of local franchise grants, but most of the franchises are for the period of thirty years. Several companies, however, report part or all of their franchises as having a shorter duration. In Detroit the policy in recent years has been to grant franchises for track extensions only until the date of expiration of the franchise for the main system.

As to the question of fares the state law merely provides that there shall be no revocation during the term of its franchise of rights once granted a street railway.[5] About 40 miles of track were constructed by the Detroit Street Railway Company under a franchise granted about 1896 which required that 8 tickets be sold for 25 cents. The older company for a time met the competition of this new railway by a 3-cent fare. Finally a combination of the two companies was effected and the fare on the older lines was raised again to 5 cents (except at rush hours, when tickets sold at the rate of 6 for 25 cents may be used). The city attempted to fix the fares on all lines at 3 cents, but its right to do so was denied by the courts. In several of the smaller cities of Michigan the local franchise ordinances require tickets to be sold at a reduced rate, usually 6 for 25 cents.

In the absence of any state provision in regard to special compensation to cities, the requirements depend wholly on local franchise ordinances. No special payment for franchise privileges, aside from ordinary taxes, is required in Grand Rapids or Saginaw. In Detroit the lines of the Detroit Street Railway Company were not only not required to pay any special taxes on earnings, but they were not even required to pave and maintain the surface between the tracks. Several of the other franchises in Detroit require the payment of from 1 to 2½ per cent of the gross receipts, the leading lines paying 2 per cent. The total amount received by the city of Detroit from this source in 1902 was $30,823.

In 1899 a law was passed authorizing Detroit to construct or acquire and to operate street railways, but this act was held invalid by reason of the clause in the constitution prohibiting the state or its subdivisions from taking part in works of internal improvement. A movement is now on foot to secure an amendment to the constitution which shall permit municipal ownership of street railways.[6]

*Minnesota.*—In the legislation of Minnesota the only provision of importance as to the method of granting franchises is in the new charter of St. Paul, adopted in 1900, which requires a three-fourths vote of each body of the city council.

All corporate charters are limited to fifty years, but with provision for renewal; they may be amended or repealed by the legislature. The general state laws do not limit the duration of local franchises, but the new St. Paul charter restricts the duration of street railway franchises to twenty-five years. Several of the earlier franchises in St. Paul and Minneapolis are perpetual, and most of the others throughout the state are for fifty years.

The general laws of Minnesota contain no provisions as to fares or as to special compensation for franchises. The new charter of St. Paul requires railways hereafter authorized to pay at least 5 per cent of the gross receipts to the city; but nothing is received by the city at present, the existing lines operating under old franchises.

As far back as 1893 the Minnesota legislature enacted a law permitting any city or village at the expiration of five years from the time of granting a franchise to any public service corporation, or at the expiration of any five-year period thereafter, to buy out the plant at an appraised valuation. The approving vote of two-thirds of the electors voting thereon is required to authorize such a purchase.[7] No action has yet been taken by any city under this law.

[1] For description of this subway, see page 37.
[2] Compiled Laws of Michigan, section 3111.
[3] Public Acts of 1901, chapter 238.
[4] Compiled Laws, section 6436.
[5] Ibid., section 6447.
[6] Proceedings of Detroit Conference of National Municipal League, 1903, page 136.
[7] Statutes of Minnesota, 1894, section 2592.

*Missouri.*—The state constitution of Missouri prohibits the legislature from granting the right to use the streets of a city without the consent of the local authorities.[1] A law of 1899 requires, before the granting of a franchise, a petition of the owners of more than half of the frontage on streets which are to be occupied by the street railway;[2] this provision formerly existed only for certain classes of cities. A general law also permits the local authorities in cities of more than 100,000 inhabitants to require competitive bidding for franchises, but this method has not heretofore been pursued, at least in St. Louis or St. Joseph.[3]

There is no state provision on the subject of duration of corporate charters or franchises. The actual franchises reported vary greatly in duration, even within the city of St. Louis. The most common period is fifty years, but several franchises are for twenty years only; none are perpetual.

Cities of more than 100,000 inhabitants, designated by Missouri laws as first-class cities, are given the continuous right to regulate fares on railways now built or hereafter to be built.[4] Other classes of cities are not given this power. In St. Joseph the street railway is required to sell 100 tickets for $4.

The law for cities of the first class permits them to impose, at the time of granting the franchise, taxes on passengers, cars, or gross receipts. Other classes of cities are granted authority to levy license fees on cars.[5] Various requirements of percentage payments exist in St. Louis franchises. According to the report of the mayor, the ordinary tax receipts from street railway property were supplemented, in the census year, by $105,858 from special percentage taxes, and by $24,750 from car license fees, at $25 per car.

*New Jersey.*—The general law of New Jersey provides that no company may be permitted to construct street railways without the consent of the local authorities and of the owners of one-half of the street frontage affected.[6]

The state law contains no restriction on the subject of duration of franchises. Seventeen companies report that all of their franchises are perpetual, and several others report that a part of their franchises are perpetual. Some companies, however, have franchises limited to periods varying from thirty-five to ninety-nine years.

The state laws do not regulate fares, and the prevailing limit fixed by local franchises is 5 cents.

By a state law any city of over 100,000 inhabitants may impose license taxes on street railways for the purpose of regulation, but not for the purpose of taxation or for the purpose of preventing the use of the franchise. This law, however, does not hinder a city from making such requirements as it sees fit when it first grants the franchise. In Newark the street railway companies are required to pay 5 per cent of their gross receipts and a license fee of $10 per car. The receipts from street railways, aside from ordinary taxes, were $86,797 in the census year. In Paterson there is a special payment of 2½ per cent of the gross receipts, which amounted to $14,636 in the census year.

*New York.*—A constitutional amendment in New York, passed in 1875, provides that no surface or elevated railway may be constructed in the public streets without the consent of the local authorities and of the owners of one-half, in value, of the abutting property. If such consent be refused, an appeal may be taken to the courts, which are required to investigate through three commissioners the public necessity of the railway.[7] By statute the consent of the owners of two-thirds, in value, of the abutting property is required for constructing a railway in an unincorporated town.[8] By other laws, originally enacted in 1884 and applying only to New York city, but since extended to all cities of over 50,000 inhabitants, street railway franchises must be sold, by competitive bidding, to the corporation offering the highest percentage of gross receipts.[9] By the New York city charter[10] it is further provided that no franchise grant of any sort shall be made except on terms deemed satisfactory by the board of estimate and apportionment, a small body composed mainly of executive officers, which has the chief control over the finances. The board is directed to make careful inquiry as to the value of the proposed privileges, and is supposed thus to supplement competition by careful bargaining. A vote of three-fourths of the members of the board of aldermen is also required. In cities of the second class, with from 50,000 to 250,000 inhabitants, the approval of a similar board of estimate and apportionment must be given subsequent to the auction sale.

Under the street railway law there is no general restriction on the duration of charters or franchises, but charters may be amended or repealed at any time by the legislature. By the New York city charter no franchise for any public utility shall be for a longer period than twenty-five years, but it may contain a provision for renewal, for not to exceed twenty-five years, upon a fair revaluation (section 73). In cities of the second class—from 50,000 to 250,000 inhabitants—franchises are limited to fifty years (section 19). The more important franchises in most of the cities of the state, including New York city, are perpetual, having been granted before the passage of restrictive laws. Seventy companies report that all of their franchises are perpetual, and others report that part of their franchises

[1] Article xii, section 20.
[2] Laws of Missouri, 1899, page 105.
[3] Revised Statutes, 1899, section 5438.
[4] Ibid., 1899, section 5439.
[5] Ibid., 1899, sections 5438, 5508, 5857, and 5978.
[6] General Statutes of New Jersey, 1895, pages 3231 and 3247.
[7] See Constitution of 1895, article iii, section 18.
[8] Railroad Law of New York, section 91.
[9] Railroad Law, section 93; charter of second-class cities, Laws of 1898, chapter 182, section 19.
[10] Laws of 1901, chapter 466, section 74.

are perpetual. There are, however, a considerable number of limited franchises, usually ranging in duration from fifty to ninety-nine years, with a few of nine hundred and ninety-nine years' duration.

A general law, enacted in 1884 and applying to all railways constructed after the passage of the act, limits fares to 5 cents for any distance which can be reached by the cars of a single company within the limits of a single city or village. This is held to require practically unlimited transfer privileges over the lines operated by a single company, including the lines which it holds under lease.[1] The right of the state legislature to revise fares on street railways constructed after 1884 is expressly reserved by the law. Local franchise ordinances in several small towns have required tickets to be sold at reduced rates, usually 6 for 25 cents, but Syracuse is the only large city in which a fare lower than 5 cents is required. The law of 1884, which contained the provision for competitive bidding on franchise grants, also provided that in any city of more than 1,200,000 inhabitants, all surface railways thereafter constructed should pay to the city a minimum of 3 per cent of their gross receipts during the first five years and 5 per cent thereafter. Moreover, the general railroad law provides that other cities and villages may, in granting franchises, require an annual percentage payment, not to exceed 3 per cent of the gross receipts.[2]

In New York city a few railway franchises dating back of 1884 require small annual payments to the city, but many of the most important lines are free from such requirements. In the franchises granted since 1884 the minimum percentage required by law has seldom been exceeded through competitive bids, though there are a few instances in which the percentage secured in this way is from one-fourth of 1 per cent to 1 per cent above the statutory minimum, and one in which it is 3 per cent above that minimum. The board of estimate and apportionment has of late favored the policy of demanding a percentage increasing from time to time. Thus the franchises for two extensions on Manhattan Island, granted in 1899, required the payment of 4 per cent of the gross receipts during the first five years, 6 per cent during the next five years, 8 per cent during the next five years, and 10 per cent during the remaining ten years of the grant.[3] New York city also levies a license fee, usually of $50, on cars; but some companies are exempt or have lower rates by the terms of their franchises. The total payments by street railway companies to New York city, aside from ordinary taxes, amounted to $422,177 in 1902.[4]

In Rochester the street railway company pays 1 per cent of its gross receipts to the city, the revenue from this source, together with a small car license fee, being about $30,000 a year. In Buffalo the leading company at present pays 3 per cent of the gross receipts. Formerly one of the leading companies was subject to no such requirement, but it combined with another company which under the plan of competitive bidding had agreed to pay 13¾ per cent of its receipts to the city. A compromise was made with the city by which 3 per cent should be paid on the receipts of the consolidated system. The total payments to the city from this source in the census year were $85,851.[5] In Utica, Binghamton, and Albany no special payment of any importance is made to the city by the street railway companies.

An important state law of 1899[6] requires that the value of "special franchises," including therewith as a single unit the tangible property so far as it occupies public streets and places, shall be assessed to its full amount by the state board of tax commissioners. The assessment is then reported to the local authorities, and the ordinary tax is collected on this basis. Under this law the assessment of street railway companies, particularly in New York city, has been greatly increased. The constitutionality of the law has been upheld by the New York courts.

The charter of New York city (sections 71 and 73) declares that the rights of the city in its streets and public places are inalienable. Every franchise for a public service enterprise may provide that at its expiration the plant shall become the property of the city, either without payment or at an appraised valuation, which shall not include any allowance for the value of the franchise itself. The city may then either operate the plant directly or lease it for not more than twenty years, after competitive bidding.

The new subway in New York city is owned by the city and leased to an operating company under conditions more fully set forth on page 135.

*Ohio.*—By a general state law of Ohio franchises for street railways may be granted only with the consent of the owners of more than one-half of the frontage of the streets to be occupied. Moreover, franchises must be sold by public competitive bidding to the corporation offering to make the lowest fares.[7]

The general law (with an exception for a limited class of cities) restricts the duration of local franchises to twenty-five years, without special provision regarding renewal.[7] Of the 63 companies reporting on this subject, 41 have all of their franchises limited to twenty-five years, and several others hold part of their system under franchises so limited. A few franchises, dating from an earlier time, are perpetual, and a few others are restricted to other periods of time than the present statutory limit.

[1] Railroad Law, section 101; see also page 42.
[2] Ibid., section 95, as amended.
[3] Myers, in Municipal Affairs, March, 1900, pages 155 and 157.
[4] Annual Report of Comptroller of New York, 1902.
[5] Letter from Mayor; see also Massachusetts Report, page 115.
[6] Laws of 1899, chapter 712.
[7] Revised Statutes of Ohio, sections 2501 and 2502; repeated in New General Municipal Code, Laws of Ohio, special session, 1902, pages 31 and 32.

In 1896 a special act was passed which permitted existing companies in any city to consolidate, and which authorized the city governments in such cases to extend the franchises for fifty years. The terms with regard to fares which should be imposed by the city at the time of such extension were to remain unchanged for twenty years. At the end of the twenty-year period, and again fifteen years later, the city was to have the right to alter the rates of fare. The railway companies of Cincinnati, in whose interest principally the law was passed, consolidated and received an extension of their franchises for fifty years. The act was repealed in 1898, and it has recently been declared unconstitutional by the superior court of Cincinnati. The case is still pending, however, before the state supreme court.[1] The franchise of the Peoples Railway Company of Cleveland, granted in 1902, but held invalid by the courts, authorized the city to take possession of the railway at any time on payment of 10 per cent more than the actual structural value.

The provision that franchises shall be granted in every case to the corporation offering the lowest fares, together with the general feeling of the people in Ohio on this subject, has resulted in the introduction of important limitations in the matter of fares in a number of recent franchise grants. In Columbus the franchise of the Columbus Railway Company, which, in 1901, was extended for twenty-five years, requires that 7 tickets shall be sold for 25 cents, until such time as the gross receipts of the company may reach $1,750,000, when 8 tickets must be sold for 25 cents. The new Central Market Street Railway in the same city is required to sell 7 tickets for 25 cents, and also to pay 2 per cent of its gross receipts to the city. In both cases universal transfers on both cash fares and tickets are required for the lines of the single company, while for a 5-cent fare the passenger must be given a transfer to the lines of the other company.[2] In many of the smaller cities of the state local franchise ordinances have required the companies to sell 6, and in a few cases 7, tickets for 25 cents.

The subject of street railway fares has been a matter of much agitation in Cleveland during recent years. In 1902 a franchise was granted to the Peoples Railway Company to construct certain lines on which a 3-cent fare was to be charged. This franchise covered part of a much more extended system which had been planned by the city, and which was to be restricted to the same fare throughout. This franchise was, however, held invalid by the courts because of technical errors. In September, 1903, another franchise was granted to the Peoples Railway Company, also subject to the requirement of a 3-cent fare, but construction has not yet begun. The city authorities of Cleveland had previously sought to compel the two existing companies to reduce their fare to 3 cents, but in 1904, after protracted litigation, the United States Supreme Court held that the city could not modify the terms of the original grants. Pending the final decision of the court, the two companies consolidated and voluntarily began to sell 6 tickets for 25 cents and to give universal transfers. In 1904, however, the consolidated company raised the price of tickets to 11 for 50 cents, and restricted the transfer privilege somewhat. Various proposals for a zone system of charges have been made, but no agreement could be reached between the city and the company. The subject of fares is therefore still an unsettled one in Cleveland. In Cincinnati the extension franchise of 1896, now under litigation, permitted a 5-cent fare for the first twenty years.

The general law in Ohio authorizes municipalities to levy car license fees, and a recent enactment permits them to agree with any street railway company now paying such fees to substitute therefor a percentage of gross receipts.[3] In Cleveland a car license fee of $10 is imposed, but there is no other requirement of compensation at present. As indicated by the franchise in Columbus, above mentioned, it is feasible under the state law to require a percentage of gross receipts at the time of granting the franchise, notwithstanding the fact that the form of competition provided by law has to do with rates of fare. In Cincinnati the new franchise of 1896 required the railway company to pay 6 per cent of its gross receipts to the city, and the revenue derived from this source is about $200,000 a year. No special payment aside from ordinary taxes is received from the street railway companies in Springfield, Canton, Toledo, or other cities from which reports were received.

*Oregon.*—There is no general law in Oregon regarding the method of granting local franchises. The new charter of Portland, prepared by a local board and adopted by popular vote in 1902, provides that any ordinance granting a franchise or leasing public property for a period of five years or more must, on petition of 15 per cent of the voters, be submitted to popular vote.[4]

The state laws do not place any general restriction on the duration of franchises. All of the franchises reported to the Bureau of the Census are limited, the most common period being thirty years. The new Portland charter (sections 95 and 96) restricts all future franchise grants to twenty-five years. At the expiration of this time the city may elect to take over the property at an appraised valuation, which shall not include the value of the franchise itself, or it may renew the grant to the same corporation or transfer it to any other company

[1] See street railway section of Commercial and Financial Chronicle, November 14, 1903, page 1918.

[2] Annual Report of City Clerk of Columbus, 1901, pages 22, 23, 43, and 44.

[3] Laws of Ohio, 1902, page 502.

[4] Charter of Portland, section 108.

offering better terms. If the grant is to a new company the grantee must purchase the plant at an appraised valuation.

No general provisions regarding fares appear in the state laws of Oregon. The two companies in Portland are allowed, by their franchise ordinances, to charge 5 cents.

Neither the general laws nor the new charter of Portland contain provisions regarding special compensation for street railway or other franchises. The Portland charter, however, declares that the value of franchises is to be assessed for the general property tax, and it requires all franchise holders to make detailed reports of their business to the city authorities. Shortly before the adoption of the new charter in Portland the city council extended the franchises of the two principal street railway companies for a period of thirty years. In addition to the various requirements regarding the paving of streets and the construction and maintenance of bridges, the city provided that the Portland Railway Company should pay $1,000 yearly for the first five years, and that the rate of compensation should increase gradually until it becomes $5,000 yearly for the last five years of the grant. In the case of the City and Suburban Railway Company the rate of compensation was fixed at $3,000 yearly for the first five years, and the rate is to increase up to $12,000 yearly for the last five years.

The new Portland charter, as above indicated, permits the city to take over a street railway or other public utility at the expiration of its franchise. To do so, however, requires the approval of a popular vote. The question whether the city shall acquire the plant must be submitted to vote, if demanded by petition of 15 per cent of the electors. If the city takes over the property it may either operate it directly or lease it for not more than twenty-five years, or it may at any later time sell the property and franchise to the highest bidder (sections 95 and 96).

*Pennsylvania.*—The state law contains no provisions regarding the method of granting franchises beyond a requirement that the consent of the local authorities shall be obtained before a street railway is constructed in the public streets or highways. The usual practice of city councils, as reported by the mayors of leading cities, is merely to pass an ordinance on the subject in the same manner as they pass other ordinances.

The state law imposes no restriction as to the duration of charters or franchises, but the constitution gives the legislature the right to amend or repeal the charters of all corporations. Of the 98 companies reporting, 75 have perpetual franchises for all their lines and several others have perpetual franchises for part of their lines. Of the other companies reporting, 9 have franchises for nine hundred and ninety-nine years and only 3 report limits as short as fifty years. All franchises in Philadelphia are perpetual, even those most recently granted.

The state laws do not regulate fares. In most local franchises the restrictions on fares present no peculiar features, although in a considerable number of the smaller cities and towns the local franchise grants have required tickets to be sold, usually at the rate of 6 for 25 cents. The recent franchises for elevated, subway, and surface lines in Philadelphia, which in respect to fares closely resemble those for the many earlier lines, merely provide that the fare for a continuous ride shall not exceed 5 cents within the city limits, no provisions regarding transfers being inserted.[1]

As to special compensation the state law merely provides that cities of the second and third classes may levy license fees on street cars, and that companies in Philadelphia must pay a license fee of $50 per car, which may not be increased by the city authorities in case of companies already chartered at the time the statute was passed.[2] The state itself levies somewhat heavy taxes on the stocks and bonds of street railways and on their gross receipts. In Philadelphia, by virtue of the terms of the various franchise grants rather than by general law, most, if not all, street railway companies are required to pay a tax of 5 per cent upon all dividends in excess of 6 per cent. This provision, for example, is found in the important new franchises granted in 1901. As there is no restriction upon capitalization, this requirement is easily obviated by stock dividends, etc., and hence does not result in much revenue. The car license fees are, however, a somewhat important source of income to the city, amounting to about $100,000 in the census year.

When, about 1892, the street railway companies of Philadelphia desired to change from animal power to electric traction, the city seized the opportunity to require them to pave the entire street surface in the streets occupied and to maintain the pavement in the future. The same provisions were inserted in the new franchises of surface lines granted in 1901. This requirement constitutes virtually a greater compensation to the city than the percentages on gross receipts required in most cities where the street railway company paves only the space between its tracks. The Philadelphia railways have expended several millions of dollars in paving streets, and their annual expenses for maintenance are quite large. The total payments of the Union Traction Company, of Philadelphia, to the state and local authorities, including the expense of maintaining the pavements, have averaged about 7 per cent of its gross receipts during the past three fiscal years. The direct payments for new paving have been made largely out of capital, and the interest on such expenditure is not included in computing this 7 per cent.[3]

Car licenses or pole licenses of moderate amount

[1] In regard to transfers on existing lines in Philadelphia, see page 42.

[2] Public Laws of Pennsylvania, 1868, chapter 849; 1901, chapter 20, article 19, section 3; 1901, chapter 224.

[3] See Massachusetts Report, pages 128 and 129.

are required in a few other cities of Pennsylvania, but aside from these there is little or no payment to the local authorities in addition to the ordinary taxes. Thus there are no special payments, aside from such licenses, in Allentown, Easton, Erie, Pittsburg, Reading, and Scranton. In Harrisburg the street railway company is required to pay 3 per cent of its gross receipts, the revenue to the city from this source being about $2,900 yearly.

*Rhode Island.*—By the state constitution of Rhode Island[1] street railway charters can be granted only by special acts of the state legislature. In some cases the legislature has also granted the right to use streets, without action of the local authorities; but in other instances—as, for example, in the charter of the Rhode Island Suburban Railway Company—the consent of the local governments has been required, and local self-governing bodies have been permitted to impose reasonable rules and regulations.[2]

The general state laws are entirely silent as to the duration of franchises. According to the reports of the companies, 6 of the 8 have perpetual franchises. The Union Railroad Company, which includes a large proportion of the total trackage in the state, was in 1892 granted by the state legislature a twenty-year extension of its franchises, with exclusive authority to operate in Providence. The franchise of the railway company in Woonsocket has been limited by the city council to twenty years.

The Rhode Island legislature in 1898 passed a very peculiar statute. It applies only to those street railway companies which may indicate their written consent thereto, but in case of consent it becomes binding as between the state and such assenting company, and its terms are not subject to amendment or repeal without the consent of the company. The law imposes a tax for state purposes of 1 per cent upon the gross earnings of assenting companies whose dividends do not exceed 8 per cent on the par value of their capital stock. If the dividends exceed 8 per cent an additional amount equal to such excess also goes to the state as a tax. The issue of capital stock requires the approval of the state railroad commissioner. Companies accepting this act are to have their existing franchises and rights guaranteed in perpetuity regardless of the limits prescribed in their present charters or franchises. Cities and towns are specifically denied the authority to require the removal of the tracks of these assenting companies except for police reasons, and in such cases a substitute location must be provided. The companies assenting, however, are bound to continue to make any payment which they are now making to the local governments, even after the expiration of the existing franchise, unless a new agreement shall be made increasing the obligations of the railway. This last provision seems quite valueless, since no additional requirement could apparently be exacted by the local authorities except as a condition for the granting of additional privileges.[3]

The law of Rhode Island regarding the issue of transfers is summarized on page 43. There is no general law regarding fares, and the special laws and franchises contain no unusual provisions on this subject.

The state law regarding the Union Railroad Company requires it at present to pay 5 per cent of its gross receipts—only the receipts within the city itself—to Providence.[4] This payment in the census year amounted to $66,195. In Woonsocket the local franchise requires the payment of 3 per cent of the gross receipts, and the city received $1,631 from this source in the census year.[4]

*Virginia.*—The new constitution of Virginia (1902, section 125), and a statute since passed in accordance therewith, require all future grants of municipal franchises to be made by competitive bidding. The franchise must be awarded to the highest responsible bidder, unless, in the opinion of the majority of the members elected to the city council, the public interests will be better served by awarding it to some other bidder, in which case the reason for doing so must be stated in the body of the ordinance. The city may reject all bids.[5]

By the new constitution and statute[6] the duration of future franchises, as well as of leases of public property, is restricted to thirty years. The law requires that every franchise shall provide in advance that at the expiration of the thirty-year period the plant shall become the property of the city, either without compensation or on payment of the appraised valuation exclusive of any allowance for the franchise. A considerable number of earlier street railway franchises in Virginia are perpetual, but the greater number are limited to periods ranging from thirty to fifty-six years.

There is no state law on the subject of fares. In Richmond, Norfolk, Danville, and most of the other cities, however, the local franchises require the street railways to sell 6 tickets for 25 cents. The new constitution of the state declares that "the right of the commonwealth, through such instrumentalities as it may select, to fix and regulate the charges of public service corporations shall never be surrendered or abridged" (section 164).

Aside from the requirement of competitive bidding on franchise grants, the state law makes no provision for special compensation to cities. As in other Southern states, however, the local governments are authorized to levy license taxes. In Richmond there are no car licenses, but the franchise of the leading railway system requires 5 per cent of the gross receipts to be

[1] Article IX of Amendments, section 1.
[2] Acts and Resolves of Rhode Island, May, 1899, page 30.
[3] Public Laws of Rhode Island, 1898, chapter 580.
[4] Massachusetts Report, page 130.
[5] Acts of Assembly, extra session, 1902–3, pages 426, 427.
[6] Ibid., page 425.

paid to the city.[1] The revenue from this source in the census year was $28,121. In Norfolk the franchise of the leading company, dating from 1888, restricted the license taxes on cars for ten years to certain rates, but left the license system thereafter to the discretion of the city. The city now levies on all companies a license tax of 4 per cent of their gross earnings, the revenue from this source in the census year amounting to $12,671.

*Washington.*—The state law of Washington merely provides that at least 5 members of a city council must vote for a local franchise. The low-fixed number is perhaps explained by the fact that several of the city councils have only 7 members. The practice in Seattle, apparently adopted on the initiative of the city merely, is to sell street railway franchises by competitive bidding to the person or corporation offering to pay the city the highest percentage of the gross receipts.

The state law limits the charters of corporations to fifty years, and they may be amended or repealed by the legislature. There is no general restriction on the duration of local franchise grants. One perpetual franchise is reported, but most of the franchises are limited to from twenty-five to fifty years.

The general laws of Washington do not regulate fares, but by local franchises they are ordinarily limited to 5 cents.

In Seattle, by the local ordinances, street railways are required to pay 2 per cent of their gross receipts to the city, this minimum being fixed when the franchise is opened to competition. The revenue from this source is approximately $20,000 yearly. Spokane and Olympia require no special payment of any importance.

By an act of 1899 municipalities are authorized to construct, purchase, or obtain by condemnation street railways or other public service enterprises, but no detailed provision is made as to the method of acquiring such public ownership.[2]

*West Virginia.*—There is no general law in West Virginia regarding street railway franchises. Each city is governed by a separate charter. The new charter of Parkersburg requires future franchise grants to be submitted to referendum vote, if demanded by one-fifth of the qualified voters. It further provides that franchises shall be sold to the person or corporation offering the highest compensation to the city, or the lowest fares.[3]

Corporate charters of all classes are limited to fifty years, but there is no general law restricting the duration of local franchises.

The new charter of Parkersburg limits all franchises to thirty years. It further declares that no grant for an extension of a street railway hereafter constructed shall be made for a period exceeding the duration of the original franchise. At the expiration of the franchise, the grantee may be required to sell the property to the city at its appraised valuation independent of its earning capacity. Several of the franchises reported from West Virginia are perpetual, while others are limited to from twenty to fifty years.

The Parkersburg charter provides that no future franchise shall be granted without an annual payment to the city, but it contains no further details as to amount or basis of payment. The franchise recently given by Wheeling for a period of fifty years to the City Railway Company requires the payment of $300 per mile of line for the first twenty years, and $1,000 per mile for the last thirty years of the grant. This franchise also provides that the street railway shall be operated exclusively by union labor.

*Wisconsin.*—The general state laws of Wisconsin do not contain any provisions regarding the manner of granting franchises.

Though the state law contains no restriction on the duration of local franchises, most of those reported are for shorter periods than fifty years, several are for exactly fifty years, and only one is perpetual.

The state law contains no provision regarding fares. In Milwaukee the companies are required by the terms of their franchises to sell 6 tickets for 25 cents or 25 tickets for $1, and similar provisions are found in the franchises granted by several other cities.

The general state law regarding street railway companies provides that the local authorities may prescribe the payment of license fees. Neither Milwaukee nor La Crosse, however, requires such payment. The law further provides that in lieu of taxes on property, street railway companies shall pay to the local authorities 2 per cent of their gross receipts if the receipts are less than $500,000 per year, and 4 per cent if they are more than $500,000.[4] This constitutes a lighter tax than street railway companies in many other states pay on their property. In La Crosse the company is required by the local franchise to pay 3 per cent of its gross receipts even though they are less than $500,000, but in Milwaukee nothing is paid beyond the 4 per cent provided in the state law.

[1] See Massachusetts Report, page 132.
[2] Laws of Washington, 1899, chapter 128.
[3] Acts of West Virginia, 1903, chapter 66, section 84.
[4] Laws of Wisconsin, 1899, chapter 354, amending earlier statutes which imposed taxes at other rates.

# CHAPTER X.

## STREET RAILWAYS IN EUROPEAN COUNTRIES.

### I.

### UNITED KINGDOM.[1]

*Comparison with the United States.*—The statistics of street railways, or tramways, as they are called in Great Britain, which are published annually, cover practically only urban lines. In addition to these, there are a few interurban electric railways, built under what is known as the light-railways act, the returns for which are included with those of steam railways.

Table 81 shows for the years 1902, 1901, and 1898 the leading statistics of the tramways of the United Kingdom. The figures include only the surface railways.

TABLE 81.—*Trackage, traffic, and financial statistics of tramways in the United Kingdom: 1902, 1901, and 1898.*

[House of Commons Papers, "Returns of Street and Road Tramways," 1902, page 2.]

| | 1902 | 1901 | 1898 |
|---|---|---|---|
| Length of line (first main track), miles | [1] 1,484 | 1,305 | 1,064 |
| Capital invested [2] | $153,597,772 | $130,417,445 | $80,262,547 |
| Number of passengers | 1,394,452,983 | 1,198,226,758 | 858,485,542 |
| Passengers per mile of line | [3] 939,658 | 918,181 | 806,847 |
| Gross earnings | $32,504,770 | $29,009,508 | $22,191,853 |
| Operating expenses and taxes | $23,446,179 | $22,021,784 | $17,071,171 |
| Ratio of operating expenses and taxes to gross earnings, percentage | 72.1 | 75.9 | 76.9 |
| Number of cars | 7,752 | 7,184 | 5,335 |
| Number of horses | 24,120 | 34,422 | 38,777 |
| Number of steam locomotives | 388 | 527 | 589 |
| Passenger receipts | $31,465,889 | ..... | ..... |
| Average fare per passenger | $0.0226 | ..... | ..... |
| Car mileage | 145,127,423 | ..... | ..... |
| Passengers per car mile | 9.61 | ..... | ..... |
| Gross earnings per car mile | $0.224 | ..... | ..... |
| Operating expenses per car mile | $0.162 | ..... | ..... |

[1] Additional trackage of double tracked railways, exclusive of sidings and switches, 852.7 miles.
[2] Includes expenditure for construction on lines not yet in operation.
[3] Passengers per mile of track, exclusive of sidings and switches, 596,762.

The table indicates that the development is much less marked in the United Kingdom than in the United States. The total length of track in the United Kingdom in 1902 was 2,336.7 miles, exclusive of sidings and switches, or presumably about 2,400 miles if these be included. This is approximately one-ninth of the mileage in the United States. The number of fare passengers carried by the British tramways during 1902 was 1,394,452,983, as compared with more than 4,774,211,904 in the United States. To the British statistics, however, should properly be added the number of passengers carried on the four underground railways in London and on the elevated railway in Liverpool. These aggregated 192,377,288 in 1902, making a grand total of 1,586,830,271, or one-third of the number in the United States. The passengers carried by the omnibuses in London, where surface railways are not permitted in the central portion of the city, number nearly 300,000,000 per year.

In judging of the relative importance of street railway traffic in the two countries the number of urban inhabitants must be taken into account. The total population of the United Kingdom in 1901 was 41,607,552, and the average number of rides on the tramways, underground, and elevated railways was 38 per capita, as compared with 63 in the United States. But the population living in urban communities of more than 3,000 inhabitants in England and Wales and in urban communities of more than 2,000 inhabitants in Scotland and Ireland numbered 29,144,726, the proportion of urban to total population being much greater than in the United States. The number of street railway rides per urban inhabitant is thus 54, as compared with 168 rides per inhabitant of urban communities of more than 4,000 population in the United States. It may be roughly estimated from the statistics of population in incorporated places of from 2,500 to 4,000 inhabitants, that if urban communities of 3,000 to 4,000 were included in the computation of the American ratio it would be reduced to about 160 rides per inhabitant. Such a comparison is necessarily imperfect in many respects, but it gives some idea of the relative development of street railways in the two countries.

The street railway business in the United Kingdom, however, has grown with enormous rapidity during recent years. In 1890 the number of passengers carried on the tramways proper was 526,369,328, the traffic in 1902 thus being more than two and one-half times as great as in 1890. During the four years from 1898 to 1902 the length of line (first main track) of the tramways in the United Kingdom increased about 40 per cent, and the number of passengers on the tramways increased more than 60 per cent. This development has been coincident with a rapid substitution of electric for animal and steam traction, the extent of change being indicated only in part by the figures of the table showing the decrease in the number of horses and of

[1] House of Commons Papers, "Returns of Street and Road Tramways," 1902.

steam locomotives. In 1902, 871 of the 1,484 miles of line were operated exclusively by electricity; 384 miles by animal power; 156 miles by steam; 25 miles by cable; 10 miles by gas motors; and 38 miles by more than one kind of power.

The wide difference between the conditions of street railway operation in Great Britain and in the United States is sharply indicated by the comparison of the car mileage with the number of passengers. The average number of passengers per car mile on the British tramways in 1902 was 9.61, while the corresponding ratio in the United States was only 4.26. This difference probably is not due to greater crowding of cars in the British cities, nor probably is it due in any considerable measure to the use of larger cars, although many of the British cars are double decked. The chief reason for the difference in the number of passengers per car mile is the fact that the distances traveled by passengers in the United Kingdom average much less than in the United States.

Because of this difference in the length of journeys it is scarcely proper to compare street railway fares in the two countries. The receipts from passengers in the United Kingdom in 1902 represent an average fare of 2.26 cents. In practically all English cities street railway fares are graded according to the distance traveled. It is unjust to compare either the minimum or the maximum fare in such a case with the uniform fare, regardless of distance, prevailing in American cities. Probably the lowest scale of fares in Great Britain is found in Glasgow. In that city the lowest rate of fare is 1 cent (½ penny), the average length of the permissible trips at that charge being reported as 0.58 mile. For 2 cents one may ride an average of 2.29 miles; for 4 cents, an average distance of 4.6 miles; for 6 cents, an average of 6.84 miles. The maximum fare is 7 cents. The average fare for all rides in Glasgow in 1902 was about 1.8 cents.[1]

The average gross receipts per car mile for the British tramways, 22.4 cents, are almost exactly the same as the receipts per car mile in the United States. This fact, in conjunction with the fact that the average fare per passenger is so much lower in the United Kingdom than in this country, is another indication of the relative shortness of the rides in the United Kingdom.

The ratio of operating expenses to operating receipts for the tramways of the United Kingdom in 1902 was 72.1 per cent. The British statistics include taxes with operating expenses. If taxes be so included in the statistics for the United States, the ratio of operating expenses to operating earnings becomes 62.8 per cent.

*Municipal ownership.*—All of the street railways in Great Britain, up to a few years ago, were operated by private corporations, most of which had been organized under an act of 1870, which limited the duration of franchises for the use of the streets to twenty-one years. This act permitted the cities at the expiration of the grants to take over the railways on payment of their appraised value, exclusive of any allowance for the franchise. The shortness of the franchise term doubtless served to hamper the development of the business, as very few of the companies with limited franchises were willing to introduce electric traction, although electricity had already proved its advantages in the United States. Some of the municipalities, however, granted extensions of franchises on condition of installing electric traction. Many of these early franchises have expired during recent years, and in most cases the cities have acquired the plants and have adopted the policy of direct municipal operation. The cities doing so, in most instances, undertook at once a thorough renovation of the system and the introduction of electric power.

In 1902, of the tramway systems in the United Kingdom 118 with 885.5 miles of track were owned by the local authorities, as compared with 115 tramways having 598.5 miles of track owned by private corporations. A few of the publicly owned railways are now operated by private companies under lease, but much the greater number of them are operated by the local authorities directly. The London county council operates part of the lines which it owns and leases others, while there is a considerable amount of trackage in London that is owned by private corporations. The leading system in Manchester is owned and operated by a private corporation, but the city operates the other line. In Birmingham the city owns most of the track, but leases it to a company. Nearly all of the remaining cities of more than 200,000 inhabitants in England and Scotland operate their own railways. There are about 15 private companies, including those which hold municipal plants under lease, whose annual earnings exceed £25,000 each, while about 25 municipal plants report earnings exceeding that sum.

It is scarcely feasible to pronounce a final judgment as to the success of municipal ownership in Great Britain. Because of the restrictions placed upon private corporations which prevent them from adopting improved methods, a comparison of the results of public and private operation in any general way is misleading.

*Individual cities.*—Table 82 presents the traffic and financial statistics of tramways in the leading cities of the United Kingdom for 1902. The population of the cities is indicated, but in some instances the railways serve also suburban towns, so that the comparison between the population and the trackage and traffic is not altogether exact.

[1] See paper of Robert Donald, Street Railway Journal, January 3, 1903.

TABLE 82.—TRAFFIC AND FINANCIAL STATISTICS OF TRAMWAYS IN LEADING CITIES OF THE UNITED KINGDOM: 1902.

[Compiled from Returns of Street and Road Tramways, House of Commons Papers, 1902.]

| CITIES. | By whom operated. | Population, 1901. | Length of line (miles). | Power used. | Number of passengers carried. | Number of rides per inhabitant. | Car mileage. | Passengers per car mile. | EARNINGS. | | Operating expenses and taxes. | Ratio of expenses to earnings (percentage). |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Gross. | Passenger. | | |
| Birmingham[1] | Company mainly under lease. | 522,182 | 27.2 | Electric and animal | 47,536,078 | 91 | 4,746,202 | 10.0 | $1,248,997 | $1,202,167 | $939,458 | 75.2 |
| Bradford | City | 279,809 | 39.6 | Electric | 23,054,400 | 82 | 2,141,176 | 10.8 | 475,652 | 467,476 | 272,612 | 57.3 |
| Bristol | Company | 328,842 | 28.2 | Animal | 36,714,906 | 112 | 5,462,039 | 6.7 | 1,041,270 | 861,117 | 698,752 | 67.1 |
| Leeds | City | 428,953 | 37.9 | Electric and animal | 48,167,781 | 112 | 4,726,043 | 10.2 | 1,091,527 | 1,074,372 | 696,639 | 63.8 |
| Leicester | City | 211,574 | 12.1 | Animal | 10,465,733 | 49 | 911,414 | 11.5 | 224,769 | 219,061 | 190,582 | 84.8 |
| Liverpool[2] | City | 684,947 | 66.9 | Electric | 106,024,728 | 155 | 11,604,533 | 9.1 | 2,418,641 | 2,388,089 | 1,620,520 | 67.0 |
| Manchester | Company | 543,969 | 27.6 | Animal | [3]46,674,600 | 129 | [3]7,483,250 | 6.2 | 1,930,443 | 1,892,850 | 1,385,867 | 71.8 |
| Manchester | City | | 55.7 | Electric | 23,590,288 | | 1,831,126 | 12.9 | 452,346 | 445,864 | 307,908 | 68.1 |
| Newcastle | City | 214,803 | 16.9 | Animal | 12,544,331 | 58 | 1,155,837 | 10.9 | 275,984 | 275,984 | 170,050 | 61.6 |
| Nottingham | City | 239,753 | 13.4 | Animal and electric | 16,167,385 | 67 | 1,400,923 | 11.5 | 383,436 | 377,767 | 200,422 | 52.3 |
| Salford | City | 220,956 | 20.9 | Animal | 23,099,643 | 105 | 2,481,084 | 9.3 | 444,311 | 431,362 | 432,369 | 97.3 |
| Sheffield | City | 380,717 | 27.8 | Electric and animal | 49,176,631 | 129 | 3,791,993 | 13.0 | 924,966 | 923,623 | 600,779 | 65.0 |
| Glasgow | City | 735,906 | 53.5 | Electric | 163,678,190 | 222 | 12,615,021 | 13.0 | 2,990,041 | 2,982,318 | 1,426,600 | 47.7 |
| Edinburgh | Company under lease. | 316,479 | 23.6 | Electric and animal | 35,150,474 | 134 | 3,590,913 | 9.8 | 807,289 | 788,144 | 548,498 | 67.9 |
| Edinburgh | Company | | 5.0 | Animal | 7,127,383 | | 439,929 | 16.2 | 70,297 | 68,944 | 67,240 | 95.7 |
| Dublin | Company | 290,638 | 47.5 | Electric | 46,307,402 | 159 | 6,748,638 | 6.9 | 1,206,751 | 1,151,832 | 665,216 | 55.1 |
| Belfast | Company | 349,180 | 33.2 | Animal | 27,174,714 | 78 | 2,962,910 | 9.2 | 648,573 | 630,187 | 552,679 | 85.2 |
| London[4] | County council | 6,581,375 | 24.4 | Animal | 119,880,559 | 47 | 10,371,866 | 11.6 | 2,248,970 | 2,137,995 | 1,993,430 | 88.6 |
| | Company under lease. | | 64.5 | Animal | 160,209,597 | | 16,662,465 | 9.6 | 3,782,312 | 3,674,407 | [5]3,737,078 | 98.8 |
| | Three companies | | 23.5 | Animal | 31,649,199 | | 3,092,809 | 10.2 | 617,539 | 599,139 | 578,500 | 93.7 |

[1] Exclusive of two or three suburban lines.
[2] Exclusive of elevated railway, which carried 10,466,726 passengers in 1902.
[3] Includes some omnibus traffic.
[4] Exclusive of omnibus lines and of 4 underground railways, the latter carrying 181,910,562 passengers in 1902.
[5] Includes rental paid to county council; total item of rental, including offices and buildings owned by private persons, $472,352.

This table emphasizes the wide difference between the amount of trackage in British cities and in cities of corresponding population in the United States. A rough estimate of the track mileage may be obtained by adding from 60 to 75 per cent to the figures showing length of line. The greatest proportion of trackage to population is found in Dublin, where some suburban lines are included, and in Manchester, Liverpool, Bradford, and Glasgow. The greater number of the large cities in the United Kingdom (aside from London) have between 0.05 and 0.15 miles of line per thousand inhabitants, while, for the leading American cities, the corresponding figures range from about 0.20 to 0.60.

The number of passengers carried is also decidedly less in proportion to the population served in the United Kingdom than in this country. For most of the cities covered by the table the range is between 75 and 160 rides per capita yearly, as compared with from 200 to 265 in American cities of similar size. The traffic is most highly developed in Glasgow, where the average number of rides per inhabitant is 222 yearly.

In comparing the various tramway enterprises from the standpoint of the ratio of operating expenses to operating earnings, it should be noted that the sums paid by certain private corporations as rental for tracks leased from the municipalities are included with other operating expenses. Thus the North Metropolitan Tramway Company pays for the lines which it leases from the London county council a rental so great, that the net earnings of the company are less than 2 per cent of its gross receipts. The differences in the power used likewise affect the financial results materially. Generally speaking, those cities which have introduced electric traction on an extensive scale seem to show favorable operating results. In Glasgow, which was the first city in Great Britain to undertake municipal operation of street railways, the ratio of operating expenses, which include a considerable amount for taxes, to operating earnings is 47.7 per cent. It is impossible here to enter into the merits of the discussion which has been waged as to the correctness of the accounting methods in connection with municipal street railway operation in this or other British cities. The question as to the financial success of public operation in Great Britain is a disputed one, both in that country and in our own. It is difficult to escape the conclusion, however, that many of the municipal railways are operated efficiently and economically.

The streets in central London are for the most part so narrow and crowded that the operation of surface cars upon fixed tracks would be practically impossible. The more flexible movements of the omnibus give it an advantage, and the tramways are confined to the outlying parts of the city. The limitations on the duration of franchises, together with the uncertainty as to the effect of the competition of new underground railways, have prevented the introduction of electric traction on the London surface tramways. The four underground railways in London furnish a more important means of transportation than the surface tramways, the average ride being much longer on the underground roads. The two steam subways have been in operation for many years, while the two electric subways have only recently been opened. The latter have proven a great success, and plans are on foot for the conversion of the steam underground roads to electric, as well as for the

construction of extensive new electric lines. The Central London Railway, one of the new electric underground roads, popularly known as the "Tuppenny tube" because of its uniform fare of 2 pence, carried 45,305,110 passengers in 1902. The elevated railway in Liverpool is also operated by electricity. It carried 10,466,726 passengers in 1902.

## II.

### GERMANY.[1]

*Comparison with United States.*—Table 83 shows for the Kingdom of Prussia, and for the German Empire as a whole, the leading statistics of street railway operation for the year 1901. The statistics, which are secured through a private association, omit about 5 per cent of the trackage operated by companies which make no reports.

TABLE 83.—*Trackage, traffic, and financial statistics of street railways in Germany and Prussia: 1901.*

[Returns of Union of German Street and Light Railway Administrations in Zeitschrift für Kleinbahnen, February, 1903.]

| | Germany. | Prussia. |
|---|---|---|
| Length of line (first main track), miles[1] | 1,867 | 1,316 |
| Capital investment[2] | | $115,045,154 |
| Capital per mile of line | | $77,786 |
| Number of passengers | 1,191,457,000 | 799,950,000 |
| Car mileage | [3]217,171,429 | [4]140,359,006 |
| Passengers per car mile | 5.49 | 5.70 |
| Gross earnings | [3]$29,535,800 | [4]$18,752,258 |
| Operating expenses, excluding taxes | [5]$17,850,000 | [6]$11,424,000 |
| Ratio of expenses to earnings, percentage | 60.4 | 60.9 |
| Gross earnings per car mile | $0.136 | $0.134 |
| Operating expenses per car mile | $0.082 | $0.081 |
| Passenger earnings per passenger | $0.024 | $0.022 |

[1] According to government returns for March 31, 1902, 2,030 miles in Germany and 1,479 miles in Prussia, respectively.
[2] Based on government returns covering 1,479 miles.
[3] On 1,815 miles only.
[4] On 1,283 miles only.
[5] On 1,815 miles only, the expenses for about 4 per cent of which are estimated.
[6] On 1,283 miles only, the expenses for about 4 per cent of which are estimated.

The length of line (first main track) in the German Empire was 1,867 miles in 1901, or about one-ninth the length of line in the United States. The government figures for March 31, 1902, however, report 2,030 miles of line. Since the street railways of Germany are chiefly confined to cities of considerable size, a very large proportion of the lines are double tracked. It is probable that the trackage in Germany is between one-sixth and one-seventh as large as that in the United States.

The number of passengers carried by the German street railways in 1901 was 1,191,457,000, or about one-fourth as many as in the United States. The population of Germany in 1900 was 56,367,178, the average number of street railway rides per inhabitant being 21. A somewhat larger proportion of the German people live in cities than is the case in this country. In 1896 the population living in urban communities of more than 2,000 inhabitants was 49.9 per cent of the entire population. If to the urban population in places of more than 4,000 inhabitants in the United States be added the population of incorporated places of from 2,500 to 4,000 inhabitants we have a total equal to 39.8 per cent of the aggregate population. It is probable that the inhabitants of German urban communities of 2,000 inhabitants and over, as a whole, take on an average about one-fourth as many rides as the inhabitants of urban communities of the same size in the United States. Such comparisons are, however, necessarily very unsatisfactory, because of the difference in method of computing urban population and in its distribution among places of different size, as well as because of differences in the density of population within urban boundaries, and other reasons.

The number of passengers per mile of track is considerably greater in Germany than in the United States and the number of passengers per car mile (5.49) is also greater. The average size of the German cars is less than that of the American cars, and it is believed that the majority of them are not double decked. The large number of passengers per car mile probably means, therefore, that the average length of ride is much less in Germany than in this country. For this reason the fares on the German street railways, which average 2.4 cents per passenger, can not properly be compared closely with American fares.

The financial results of the operation of the German street railways are very favorable. The operating expenses per car mile are much less than in the United States, a fact largely due to the low level of wages. The capitalization of the German street railways is also much less per mile than in the United States.

The street railway business has been very rapidly developed in Germany during the past few years, as the result of the introduction of electric traction. Prior to that time the trackage had been almost wholly confined to a few large cities. Development was doubtless hindered in some measure by the limitations on the duration of the franchises, but the leading German cities wisely showed a disposition to extend grants on condition of the substitution of electric for animal power. At the end of 1901 only 3 per cent of the entire trackage of street railways was operated by animal power exclusively. About 6 per cent of the trackage was still operated by steam, although on some of this track electricity was also used in part. The rapid development of railways has been materially fostered by the manufacturing companies in the electric business, as well as by two or three large investment companies, whose chief object has been the establishment of street railways in various towns. The General Local Street Railway Company, for example, owns 125 miles of track in 11 different places. Siemens & Halske and Schuckert & Company, manufacturing electric concerns which have been combined recently, own several different

[1] Statistics from Zeitschrift für Kleinbahnen, February, 1903.

street railways. Such manufacturing companies are also largely interested in the stock of street railway companies which they do not own entirely.

*Municipal ownership.*—During the past few years there has been a marked tendency toward municipal ownership of street railways in Germany. The length of lines owned by municipalities was 315 miles in March, 1902, an increase of nearly one-fourth above the amount so owned in March, 1901. The municipalities which own street railways operate them directly in most cases, though in a few instances they are leased. The total number of municipal plants in 1902 was 34, and the most important cities in which they existed were Cologne, Düsseldorf, Munich, Frankfort, Mannheim, Aix la Chapelle, Mülhausen, and Halle. The city of Berlin owns one of the less important systems, about 11 miles in length. The large city of Nuremberg has also recently bought one line from a private company, and the same is true of Dresden, but the leading systems in both these cities are still under private ownership.

Very few of the street railway systems covered by the above table do an interurban business of any importance, although the electric lines reach fairly well the immediate suburbs of the great cities. Germany has a considerable number of light steam railways and some of these are now beginning to install electric traction, about 6 per cent of the "light railways" (Kleinbahnen) now using electric motors in whole or in part. These light railways, unlike American interurban lines, are not intended primarily for passenger traffic. They serve largely for the local transportation of agricultural products. The total length of line for railways of this class was 4,153 miles in 1902.

*Individual cities.*—Table 84 shows, for the most important cities of Germany, the detailed statistics of street railways.

TABLE 84.—TRACKAGE, TRAFFIC, AND FINANCIAL STATISTICS OF STREET RAILWAYS IN THE LEADING CITIES OF GERMANY: 1901.

[Compiled from Zeitschrift für Kleinbahnen, February, 1903.]

| CITY. | Population served.[1] | Length of line (miles). | Length of track (miles). | Length of track per 1,000 population (miles). | Number of passengers carried. | Number of rides per inhabitant. | Car mileage. | Passengers per car mile. | Gross earnings. | Operating expenses, excluding taxes. | Ratio of expenses to operating earnings (percentage). | Passenger earnings per passenger (cents). | Capital invested. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Berlin | 2,528,000 | 217.8 | 435.5 | 0.172 | 329,982,096 | 130.5 | 50,840,000 | 6.5 | $7,813,300 | $5,073,685 | 64.9 | 2.3 | $29,916,458 |
| Breslau | 423,000 | 26.9 | 63.7 | .151 | 31,878,646 | 75.4 | 5,072,000 | 6.3 | 703,385 | 435,300 | 61.9 | 2.1 | 3,136,316 |
| Düsseldorf | 214,000 | 40.3 | 66.6 | .311 | 21,476,768 | 100.4 | 3,517,000 | 6.1 | 515,270 | 405,720 | 78.7 | 2.2 | ..... |
| Nuremberg | 261,000 | 16.2 | 31.4 | .120 | 17,752,740 | 68.0 | 3,343,000 | 5.3 | 396,985 | 208,725 | 52.6 | 2.2 | 1,499,400 |
| Hamburg and Altona | 867,000 | 92.0 | 174.8 | .202 | 108,325,350 | 124.9 | 20,590,000 | 5.3 | 2,857,430 | 1,774,290 | 62.1 | 2.6 | 13,118,322 |
| Hanover and Linden | 286,000 | 99.3 | 181.2 | .634 | 26,404,834 | 92.3 | 5,427,300 | 4.9 | 869,176 | 567,630 | 65.3 | 2.6 | 9,947,296 |
| Leipzig | 455,000 | 63.1 | 131.8 | .290 | 65,093,043 | 143.1 | 12,969,000 | 5.0 | 1,432,046 | 886,550 | 61.9 | 2.2 | 8,098,931 |
| Frankfort | 288,000 | 26.8 | 53.4 | .185 | 50,422,465 | 175.1 | 7,426,000 | 6.8 | 1,090,515 | 676,775 | 62.1 | 2.1 | 2,310,590 |
| Munich | 500,000 | 29.5 | 67.5 | .135 | 52,590,256 | 105.2 | 7,348,000 | 7.2 | 1,153,110 | 732,802 | 63.6 | 2.2 | 2,517,661 |
| Cologne | 372,000 | 34.7 | 66.5 | .179 | 30,970,673 | 83.3 | 4,146,000 | 7.5 | 782,934 | 491,531 | 62.8 | 2.5 | 2,500,601 |

[1] As stated in Zeitschrift für Kleinbahnen, includes total area served.

The German cities, almost without exception, show a much smaller proportion of track to population than the American cities. In Berlin, for example, the length of track per thousand of population is 0.172 mile, as compared with 0.37 in New York. The Hanover and Düsseldorf systems include a large amount of interurban trackage and can not properly be compared with those in other cities. The lower ratio of trackage to population served is, in considerable measure, attributable to the fact that the German cities are very closely built, a large proportion of the people living in large tenement houses. This condition has, indeed, been caused in part by the inadequacy of transportation facilities, but it is due partly to other causes of an historical character. There is a comparative absence of suburbs and of thinly settled outlying districts within the limits of the leading cities.

The number of passengers carried per mile of track is very large in most of these cities, exceeding the number in cities of corresponding population in the United States. The number of rides per inhabitant, on the other hand, is, in most instances, considerably smaller than in American cities of the same size. The greatest patronage of street railways is found in the wealthy city of Frankfort, where an average of 175 rides is taken yearly by each inhabitant. The number of passengers per car mile is considerably larger in most German cities than in cities of corresponding size in the United States, chiefly because of the fact that the average ride is materially shorter than in this country. The capital invested per mile of track is much less than the net capital liabilities per mile of track in the large cities of America. In Berlin, for instance, the capital per mile of track is $68,695, as compared with $259,542 for the surface railways of New York city. The German city governments exercise the closest supervision over the issue of securities by railway companies as well as over fares and conditions of service.

The average rate of fare in the German cities covered by Table 84 ranges from 2.1 cents to 2.6 cents. To some extent, the German street railways still follow the practice of charging fares according to distance, but the tendency is distinctly toward the substitution of a uniform fare, at least within the limits of the leading municipality served. Thus in Berlin the uniform fare within the city limits is 10 pfennigs, or 2.38 cents.

Even where the system of charging according to distance exists in Germany, it often happens that much the greater proportion of the rides taken are for distances represented by the lowest rate of fare. Thus, on the railway system which serves Hamburg and the adjacent city of Altona, the minimum fare is 10 pfennigs. This covers any two of the established zones, the zones varying in length from about 0.6 mile in the central part of the city to 1.9 miles in the outskirts. For each two additional zones, an extra charge of 5 pfennigs is made, the maximum fare being 30 pfennigs, or a little over 7 cents. In 1900, 70.8 per cent of the passengers on this railway paid the 10-pfennig fare only, and 26 per cent paid 15 pfennigs, while only a little more than 3 per cent of the passengers paid higher fares.[1]

In Chapter IX reference has been made to certain interesting provisions of the street railway franchises in Berlin and Hamburg. Somewhat similar requirements as to compensation to the local authorities for the privileges conferred exist in various other German cities.

## III.

### FRANCE.

Table 85 presents a summary of the available statistics for French street railways in 1901, and also shows the statistics for the department of the Seine, which includes Paris, and for several of the leading cities of the country.

The French official statistics recognize three groups of tramways. The first group, officially designated as "tramways for passengers and freight," comprises 1,872 miles of line and is not included in the table. The railways of this group are mostly operated by steam and correspond roughly to American narrow gauge steam railways. Railways of the second group are officially designated as "tramways for passengers, baggage, and express," and are similar to American interurban lines. The total length of first main track of this class of railways is only 156.5 miles. The greater part of their business is the carrying of passengers. Somewhat more than half of these companies use steam power, and most of the remainder use electric power with the overhead trolley. The group of street railways proper, "tramways for passengers only," is mostly confined to the large cities and their immediate suburbs. The total length of line for both groups is 1,173.3 miles, or about one-fourteenth of the mileage in the United States. The population of France is about half that of the United States, and the ratio of urban to rural population is roughly the same as in the United States. Nearly one-fourth of the total length of line in France lies in the department of the Seine.

The French street railways report a cost per mile of road of $97,000, which is much less than the capitalization of American railways. Moreover, it should be remembered that the greater part of the trackage in France is located in the larger cities where the cost is higher than in small towns.

The total receipts of the French tramways are $16,963,000, or about one-fifteenth of the receipts of American street and electric railways. The receipts of the Paris companies are greater than those of all the other companies combined, notwithstanding the fact that the omnibuses in Paris carry nearly as many passengers as the tramways. The receipts per mile of line for France as a whole, $14,460, are slightly less than in the United States, where they average $15,103.

[1] Vellguth, "The Street Railway Company of Hamburg," Street Railway Journal, January 4, 1902.

TABLE 85.—TRACKAGE, TRAFFIC, AND FINANCIAL STATISTICS OF STREET RAILWAYS IN FRANCE AND IN LEADING FRENCH CITIES: 1901.

[Statistique des Chemins de fer Français, Documents Divers, 1901.]

| | Population, 1901. | Length of line (first main track) constructed, miles. | Length of line operated, miles. | Cost of construction. | Cost per mile of line. | Gross receipts.[1] | Expenses.[1] | Ratio of expenses to receipts (percentage). | Gross receipts per mile of line constructed. |
|---|---|---|---|---|---|---|---|---|---|
| France | 38,961,945 | 1,173.3 | 1,280.1 | $114,218,000 | $97,000 | $16,963,000 | $13,812,000 | 81.4 | $14,460 |
| Tramways for passengers and baggage | | 156.5 | 157.8 | 6,503,000 | 42,000 | 795,000 | 681,000 | 85.7 | 5,080 |
| Tramways for passengers only | | 1,016.8 | 1,122.3 | 107,715,000 | 106,000 | 16,168,000 | 13,131,000 | 81.2 | 15,900 |
| Department of the Seine | 3,669,930 | 285.1 | 380.7 | 46,344,000 | 163,000 | 8,230,000 | 7,218,000 | 87.7 | 28,870 |
| Other departments | 35,292,015 | 731.7 | 741.6 | 61,371,000 | 84,000 | 7,939,000 | 5,913,000 | 74.5 | 10,850 |
| Marseille and vicinity[2] | 491,161 | 53.4 | 71.4 | 8,649,000 | 162,000 | 1,053,000 | 866,000 | 82.2 | 19,720 |
| Lyon and vicinity[2] | 459,099 | 80.1 | 87.6 | 6,414,000 | 80,000 | 1,376,000 | 1,010,000 | 73.4 | 17,180 |
| Bordeaux and vicinity[2] | 257,638 | 62.1 | 52.8 | 7,108,000 | 114,000 | 872,000 | 637,000 | 73.1 | 14,040 |
| Lille | 210,696 | 42.2 | 55.3 | 3,057,000 | 72,000 | 475,000 | 347,000 | 73.1 | 11,260 |
| St. Etienne | 146,559 | 24.2 | 24.2 | 1,115,000 | 46,000 | 269,000 | 205,000 | 76.2 | 11,160 |

[1] The reports do not distinguish between operating earnings and expenses and other receipts and expenses. [2] Population of city named only.

The ratio of expenses to receipts on French tramways for passengers only is 81.2 per cent, apparently a much higher ratio than in the United States. The reports do not show clearly what is covered by the term "expenses," and it is quite probable that they include taxes, and perhaps interest on bonds as well; in which case comparison of the ratio mentioned with that of operating expenses to operating earnings on American railways would be wholly misleading. In the department of the Seine, the ratio of expenses to receipts is

larger still, and the companies in that department complain that their business is scarcely profitable. This is probably due largely to the fact that most of the traffic in the densely populated center of Paris is carried by omnibuses, the street car lines being in the main confined to the outlying districts. Moreover, up to 1901, fully half of the street car lines in Paris were still operated by horsepower, while on most of the others the expensive accumulator system was employed. Paris, indeed, shows probably a greater variety of methods of traction than any other city in the world. The underground trolley is used on a small amount of track; compressed air, ordinary steam locomotives, and locomotives operating with superheated steam without fire are also employed. The more important tramways of Paris belong to the same company which operates the omnibuses. Many new street railway lines were constructed in anticipation of the Exposition of 1900. The subway system of Paris, which is owned by the city, but operated by a private company, is not included in the statistics of tramways. The first line running nearly straight from one end of the city to the other, following the line of the Champs Elysées, was opened in 1899. Other lines are being rapidly constructed. This system is operated by electricity on the multiple-unit plan. It has proved highly profitable, and has cut deeply into the receipts of the tramways.

Recent statistics of the number of passengers carried in Paris are not available. In 1899, the surface tramways in that city carried 173,866,684 passengers. (This figure does not include one company of minor importance.) The number of passengers carried by the omnibus lines was 137,004,054, while the electric subway, which was in operation only part of the year, carried 15,887,873 passengers, making a grand total of 326,758,611.[1] The population of Paris proper in 1901 was 2,714,068. The traffic of the tramways and omnibuses is therefore much less in proportion to population in Paris than in the leading cities of the United States. It should be added, however, that in Paris, as in many other continental cities, there is an immense number of cabs with fares which are but a small fraction of those charged in American cities. A considerable share of the traffic which would here patronize the street cars is carried in cabs in Europe.

The development of street railways in the other leading cities of France is also very much inferior to that in cities of corresponding size in the United States. Most of the tramways outside of Paris, however, are now operated by electricity and very rapid development is taking place. According to L'Industrie Électrique, there were in France, at the beginning of 1903, 1,995 kilometers of line operated by electricity, and 3,004 electric motor cars, as compared with 487.5 kilometers of line and 759 motor cars in 1899. These figures presumably include the trackage of the tramways for passengers and freight which are not covered by the preceding tables.[2]

[1] Annuaire de la Ville de Paris, 1900, page 447.

## IV.

### AUSTRIA.[3]

The following statement presents statistics relating to the street railway business in Austria for the year 1900:

| | |
|---|---|
| Length of line (first main track), miles: | |
| Total | 231.5 |
| Electric | 158.2 |
| Cable | .6 |
| Horse | 72.7 |
| Receipts, total[1] | $2,137,066 |
| Expenditures, total | $1,518,977 |
| Ratio of expenditures to receipts, percentage | 71.1 |
| Passengers | 74,268,082 |
| Car mileage | 11,180,386 |
| Passengers per car mile | 6.64 |

[1] Items included are not indicated.

The most extensive electric system is in Vienna and its environs, which had 37 miles of electric road in 1900, with additional lines under construction. The number of passengers carried in 1900 was 29,382,521, the receipts, $823,410, and the expenses $644,854. As in the case of the statistics for the country as a whole, it is not clear what is included in the item "expenditures," but they apparently include taxes. Vienna has a population of about 1,200,000.

Altogether there are 22 electric railways in Austria, practically all doing an exclusively urban business as distinguished from an interurban business. Private ownership prevails.

## V.

### HUNGARY.[4]

The following statement shows for 1900 statistics of the Hungarian street railways, which are practically all electric lines operated by private companies:

| | |
|---|---|
| Length of line, miles | 156.5 |
| Number of passenger cars | 908 |
| Passengers carried | 77,860,372 |
| Passengers per mile of line | 497,510 |
| Capital invested | $16,451,181 |
| Receipts | $3,063,493 |
| Expenditures[1] | $1,808,953 |
| Ratio of expenditures to receipts, percentage | 59 |

[1] Items included are not indicated.

Budapest, the capital of Hungary, stands very high among European cities in its street railway enterprise. The total number of passengers carried by the railways in this city in 1900 was 69,875,654. There were 68 miles of line, practically all electric. The leading company has a system 37 miles in length, in which it has invested $7,475,000; the receipts in 1900 were $1,748,000;

[2] Street Railway Journal, November 21, 1903.

[3] Statistik der Electrischen Eisenbahnen, Drahtseilbahnen, und Tramways mit Pferdebetrieb, 1900.

[4] Ungarisches Statistisches Jahrbuch, 1900, page 217.

expenditures, $876,000, showing a ratio of operating expenses to receipts of only 50.1 per cent. Budapest was the first city in the world to use the underground trolley system, her first lines dating from 1889. There is also a subway railroad in this city.

## VI.

### NETHERLANDS.[1]

In addition to the strictly urban railways in the Netherlands there are numerous steam tramways connecting towns, similar to those in France and Italy. Their statistics are not separable from those of the animal power and electric roads in the cities. The chief business of these interurban lines is the carrying of passengers. The total length of line of all street railways and tramways in 1901 was 983.2 miles; the number of passengers, 65,932,000; and the gross receipts $2,839,700. Private ownership of street railways prevails in the Netherlands.

In Amsterdam there were, in 1899, 21 miles of street railway, partly operated by horses; in 1901 there were 1,422 horse cars and 1,135 electric cars. In Rotterdam there were, in 1899, 73 miles of tramways, but this trackage apparently includes some of an interurban character. In The Hague there were, in 1899, 21 miles, including steam, animal, and electric traction.

## VII.

### BELGIUM.[2]

In 1901 tramways were found in only 5 Belgian cities, and in only 2 of these, Liege and Verviers, were they operated by electric traction. All the lines are operated by private companies. In Brussels steam traction is used to some extent.

The following statement shows for 1900 the length of line and number of passengers carried in the 4 cities making reports:

| CITY. | Length of line (miles). | Passengers. |
|---|---|---|
| Brussels | 9.50 | 10,154,000 |
| Liege | 18.00 | 7,792,000 |
| Louvain | .62 | 383,000 |
| Verviers | 7.50 | 2,492,000 |

## VIII.

### SWITZERLAND.[3]

The statistics of Swiss street railways do not include the various cable and rack and pinion railways found in the mountains.

The following statement shows the chief statistics of the Swiss railways for 1899:

| | |
|---|---|
| Length of line (first main track), miles | 109.7 |
| Passengers carried | 43,151,680 |
| Car mileage | 13,646,182 |
| Passengers per car mile | 3.16 |
| Receipts | $1,069,041 |
| Expenditures[1] | $811,383 |
| Ratio of expenditures to receipts, percentage | 75.9 |
| Capital invested | $4,669,789 |

[1] Items included are not indicated.

In 1899 electric traction was employed on 23 of the 27 systems reporting, and horses were employed on 5 of the systems.

The most extensive street railway system is found in Geneva, which has about 13 miles of line, with 6,814,316 passengers in 1899. In Basel there are 7.4 miles of street railway line, and the number of passengers was 7,474,920 in the same year.

## IX.

### ITALY.[4]

The only available statistics regarding Italian street railways cover those operated by mechanical traction, but not those operated by animal power of which a number exist. They include a considerable number of interurban tramways, operated by steam, which do primarily a passenger business, but also some freight business. The first of these interurban tramways was established in 1878. They are operated for the most part on the public highways.

The total length of line (first main track) of the street railways and interurban tramways operated by mechanical traction in 1900 was 1,930 miles, of which 105 miles only were operated by electricity, practically all the rest being operated by steam. In Rome and its immediate environs there were 30 miles. In the city limits of Milan there were 53 miles, of which 34 were operated by electricity. The street railways of Italy are ordinarily owned by private companies, but those in Milan are owned by the city and leased, on very favorable terms, to an operating company.

## X.

### SPAIN.[5]

In Spain, as in Italy, there are a considerable number of so-called tramways (tranvia) which operate between cities and towns, and use chiefly steam as the motive power. Street railways proper are found in a number of cities and operate chiefly by animal traction, though electric traction is found in Madrid, Valencia, and two other cities.

The total length of the street railways and tramways in 1900 was 347 miles, of which 23 miles were in Madrid.

[1] Statistiek van het Vervoer op de Spoorwegen en Tramwegen, 1901; Jaarcijfers voor het Koninkrijk der Nederlanden, 1900, page 219.

[2] Annuaire Statistique de la Belge, 1901, page 385.

[3] Statistisches Jahrbuch der Schweiz, 1901, page 120.

[4] Annuario Statistico Italiano, 1900.

[5] Estadistica de las Obras Publicas, 1901, page 375.

# STREET AND ELECTRIC RAILWAYS

## PART II

# STREET AND ELECTRIC RAILWAYS.

## PART II.

By THOMAS COMMERFORD MARTIN, Expert Special Agent.

## CHAPTER I.

### HISTORY AND DEVELOPMENT OF ELECTRIC TRACTION.

The early technical history of street railways in America has little direct connection with the problems of traction as they exist at the present time, for, while there are some technical features which are evolutionary and reveal descent from a long line of methods and principles, the sudden change of motive power from horses and mules to electric motors, with but a brief intervening period of cable development, has brought about an entirely new set of conditions. It follows that while the earlier ante-electric history might be studied for its own sake, it embodies very little of pertinent interest and instruction in the study of the modern street railway systems of the United States.

In connection with the text which follows it is deemed proper to say that a great many authorities have necessarily been consulted, although, from 1877 onward, the facts lie very largely within the personal observation of the writer of this report. Among the books quoted are Wright's American Street Railways. Fairchild's Street Railways, Dawson's Electric Railways and Tramways, Martin and Wetzler's Electric Motor and its Applications, Crosby and Bell's The Electric Railway, Bell's Power Distribution for Electric Railroads, Pratt and Alden's Street Railway Roadbed, Clark's Tramways, Rider's Electric Traction, Gotshall's Electric Railway Economics. In addition to these may be mentioned, for their value in regard to technical data, Herrick's Practical Electric Railway Handbook, Foster's Electrical Engineer's Pocketbook, and Dawson's Electric Traction Pocketbook. These have been supplemented by numerous governmental reports, which bear more or less directly on the subject, such as that of Capt. Eugene Griffin, United States Engineers, United States Senate Miscellaneous Document No. 84, Fiftieth Congress, first session, which is believed to be the first governmental report dealing with the subject in this country. These documents have also been supplemented by citations from the columns of the electrical and technical press, particularly the files of the Street Railway Journal, Annual American Street Railway Investments, issued by that journal, as well as the transactions of the American Street Railways Association and kindred national and state societies.

In the third decade of the last century a lumbering omnibus car, called the "John Mason," of which an early engraving is here presented, was drawn by horses over strap rails laid on stone ties through Fourth avenue, New York city. This constituted the first passenger street railway ever constructed. Some twenty years later the Sixth Avenue Railroad of New York city was built, and its moderate success gave great encouragement to further development. Between 1850 and 1855 half a dozen roads were constructed; 30 in the next five years; over 80 between 1860 and 1870; and at the time of the census of 1890 there were 769 street railways in operation in the leading cities of the country.

The cable system, which the present statistics show to be almost obsolete in this country, was introduced in August, 1873, but enjoyed barely a quarter of a century of useful application. For a time it promised to be the dominating factor in the field wherever the traffic was dense enough to recoup the enormous outlay on construction and the heavy cost of operation, leaving to the horse and the mule, or an occasional dummy steam locomotive, all the other lines where passenger traffic was light.

The main ideas of the cable system were suggested at an early date by E. S. Gardiner, of Philadelphia, but the real beginning of this stage of street railway traction dated from the work in San Francisco of Andrew S. Hallidie and his coworkers, Asa E. Hovey, William Eppelsheimer, and Henry Root. It may be noted in passing that the essential principles of the cable system

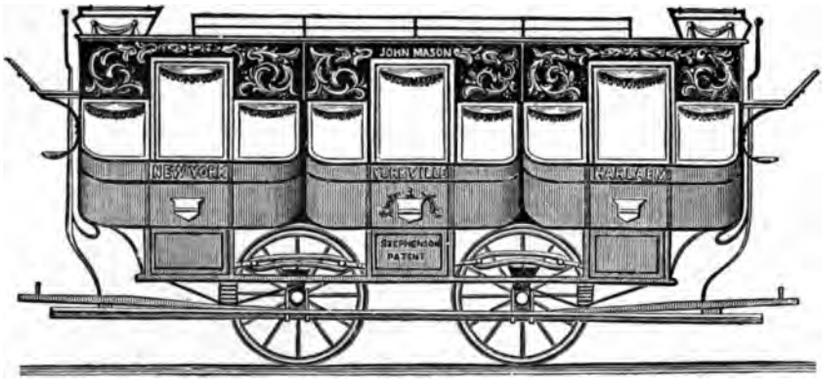
involved a cable traveling in a slotted tube operated by distant driving machinery, and a cable grip, by means of which the car attached itself to the motive cable. Upon this plan and its variations, more than one thousand patents were issued in the United States up to 1890–91, when the superiority of electricity as a motive power had been demonstrated so thoroughly that no new cable system of any kind for any purpose has since been proposed, or is likely to be seriously considered. An immense amount of ingenuity was displayed in the development and perfection of cable systems, and they served the public admirably in many ways, giving facilities never previously enjoyed and suggesting what might be done in the future to afford the dense population of modern cities greater freedom of movement. Moreover, the success of the cable was largely responsible for the welcome which capitalists and engineers gave to the first crude trials of electric traction.

It is an interesting problem to explain why the value of electricity as a motive power was so slowly recognized. The earliest efforts to apply the electric motor to locomotive purposes antedated the beginning of the cable and synchronized with the earliest attempts to utilize steampower, but it was not until fifty years after both of these methods of traction had been put into use that the electric street car or the electric locomotive could be pronounced a definite success. There is but one explanation sufficient to account for the long period of failure and disaster attending the introduction of electric traction—namely, the want of an adequate supply of cheap current with the appropriate methods for its distribution and delivery to the governed vehicle. In some of the earliest attempts the electric vehicle was self contained. In other words, the motor was attached in various ways to the revolving axle and derived its supply of current from primary batteries carried on the vehicle itself. Thus, for example, in the pioneer work done by Thomas Davenport, a blacksmith, of Brandon, Vt., this method was illustrated in his working model. Davenport not only patented electro-magnetic power as a governing principle, but in the autumn of 1835 set up a small, circular railway in Springfield, Mass., over which he drove an electro-magnetic engine.,

Prof. Moses G. Farmer, a distinguished American inventor and investigator, in 1847 constructed and exhibited in public an electro-magnetic locomotive drawing a little car that carried passengers, back to back, on a track a foot and a half wide. For this he used 48-pint cup cells of Grove nitric acid battery; and the mere statement of this fact will suggest even to the uninitiated the costliness and clumsiness of such methods. In 1850–51 Mr. Thomas Hall, of Boston, exhibited a small working motor on a track 40 feet long, at the Charitable Mechanics Fair in Boston, and while this was a mere toy, and used but a couple of cells of battery, it sufficed to illustrate the principles of a motor or locomotive with a single trail car. About this time (1847) an interesting demonstration was also made with a small working model, of one of the features which has been most instrumental in the success of modern electric methods, that of the utilization of the track as part of the return circuit for the current. Doctor Colton, once a famous dentist in New York city, and noted for his early application of laughing gas in that work, was associated with a Mr. Lilly in the construction and operation of a small model locomotive which ran around a circular track. The rails were insulated from each other, each connecting with one pole of the battery. The current from the battery was taken up by the wheels, whence it passed to the magnets, upon whose alternating attraction and repulsion motion depended; then it returned to the other rail, connected to the other pole of the battery, and thus completed the circuit necessary for the flow of the current. In like manner, in the vast machinery of the electric systems enumerated in this report, the current passes from the power house to circuits of one polarity, through the trolley pole to the motor or electro-magnetic propelling system, thence through the wheels to the track, which completes the circuit by being connected to the other pole or side of the dynamo at the power house. The principles are obviously identical, but it took more than a quarter of a century to develop the proper method of application in all its details.

The most serious and sustained attempt in the early period to operate a self-sustained vehicle or car—which would correspond with the storage battery cars, a few of which are enumerated in this report—was that due to Prof. C. G. Page, of the Smithsonian Institution. About 1850 Professor Page devoted considerable time and attention to the development of electric engines or motors, in which the reciprocating action of a system of magnets and solenoids or armatures was applied by crank shafts to driving a fly wheel, to which rotary motion was thus imparted. This reciprocal motion, as in steam engines, was one of the prevailing features of the early electric motor work in this country and in Europe; but it was not long before its general inapplicability was realized and it was abandoned for the simpler and more direct rotation of the armature before or between the poles of electro-magnets.

On April 29, 1857, with an electric locomotive on which he had installed a large reciprocating motor developing over 16 horsepower, Professor Page made a trial trip along the track of the Washington and Baltimore Railroad, starting from Washington. In order to obtain current for energization, the motor was equipped with 100 cells of Grove nitric acid battery, each having as one element a platinum plate 11 inches square dipped in the acid. Bladensburg, a distance of about 5¼ miles, was reached in thirty-nine minutes, and a maximum speed of 19 miles an hour was attained; the entire trip to and from Bladensburg occupied one hour and fifty-eight minutes. But many disasters happened




THE "JOHN MASON" ORIGINAL STREET CAR.

A "BOBTAIL" CAR STILL IN USE IN 1902 AT DECATUR, ALABAMA.

to the batteries. Some of the cells cracked wide open, and jolts due to inequalities of track threw the batteries out of working order. These experiments must have been extremely costly, and no little discouragement among people in general attended this failure; but Professor Page was not daunted, and for some years continued his work on electric motors, displaying great ingenuity, but not able, apparently, to give up the reciprocating principle.

Another inventor of the early period, whose work should not be overlooked, was Henry Pinkus, who appears to have proposed and provisionally patented, as far back as 1840, the idea of a railway whose motors should pick up their current from the rails. To his work many later inventors were referred by the Patent Office. He, as well as a great many others for several years thereafter, had to endure failure because the dynamo had not as yet been invented. The invention of the dynamo replaced the primary battery as the source of current for the electric railway, and a basis of operation was reached by which the cost would compare favorably with that of vehicles propelled along tracks by the direct application of steam.

The invention of the dynamo was the great and sufficient reason for the upgrowth of the modern industries which depend upon a large consumption of electric current. This fact is brought out by the figures of the census of 1900 in regard to electrical manufactures, where it is shown that of apparatus valued at least at $100,000,000, more than 75 per cent belongs in classes that were unavailable to the public in the days of the primary battery, and that still would be altogether inaccessible if the sources of current supply were little cells with metallic elements dipped in acid solution, yielding current in small volume and at feeble pressure.

Following promptly upon the commercial exploitation of the early magneto-electric and dynamo-electric generators came a sharp renewal of the efforts to perfect the electric railway. These efforts were made on both sides of the Atlantic, the work which attracted the most attention being, perhaps, that of Dr. Werner Siemens at Berlin in 1867 and, about ten years later, of Siemens and Halske. In the meantime efforts were being made in the United States, and in 1879 Mr. Stephen D. Field elaborated plans for an electric railway substantially the same as that soon afterward put in experimental operation by him at Stockbridge, Mass. At this stage of the development of electric railways the problem again arose with regard to the transmission of current from the source of energy to the traveling motor. Instead of using one rail as the receiving part of the circuit to the motor, and the other rail as the return part of the circuit, the idea was conceived of employing a third rail to receive the current, leaving the two outside rails for the return. This third rail was sometimes placed between the two traction rails for contact purposes, sometimes outside them on the same level or raised on short posts, and in some cases, as in mines, was placed above the car or locomotive in the manner of an inverted letter T so that the current could be taken off by some form of traveling contact. The demonstrations with the third-rail method were certainly successful, although the various parts of the apparatus would be regarded at the present time as very crude and cumbersome. It was something, however, that a start had been made and that stimulus had been given to the imaginative powers of American inventors, and it was not long before new electric railway inventions and projects were appearing all over the country.

Some of the work which at this time attracted notice was that of Mr. Thomas A. Edison, who made various interesting experiments in electric railways, which he demonstrated upon a little road built at Menlo Park, N. J. There, during the period from 1880 to 1882, Mr. Edison developed a series of electric railway motors and locomotives which were actually employed in carrying many thousand people and a considerable amount of freight. The records show, that according to a contract made between Mr. Edison and Mr. Henry Villard, in 1881, the former was to build not less than 2½ miles of electric railway at Menlo Park, equipped with three cars and two locomotives, one locomotive for freight and one for passengers, the latter having a capacity of 60 miles an hour. The capacity of the freight engine was to be the hauling of 10 tons net of freight at a cost for power per ton mile less than that of the ordinary steam locomotive. If the experiments were successful Mr. Villard was to pay the actual outlay and to negotiate for the installation of at least 50 miles of electric road in the wheat regions of the northwest. According to Mr. Edison, Mr. Villard paid out nearly $40,000 on account of the work, and there is reason to believe that the work would have gone further had not the Northern Pacific Railroad, with which Mr. Villard's fortunes were then associated, gone into the hands of a receiver. In Mr. Edison's experiments the electric locomotives were built along the usual lines of the steam locomotives, and equipped with cowcatcher, headlight, cab, etc. The motive power was at first applied from the motors to the axle by means of friction pulleys, but this method was found to be unsatisfactory, and in later efforts belts were employed. The armature shafts were belted to a large pulley and countershaft, another belt driving from a small pulley on the countershaft to a larger pulley on the car axle. In operation, the pulleys slipped a great deal before the locomotive actually started, and this led to the introduction of resistance boxes, which were placed upon the locomotive in series with the armature. The locomotive was started with three resistance boxes in circuit, consuming in heat part of the current. After normal speed had been attained, the operator could plug or switch the various boxes out of the circuit, and in this way gradually increase the speed. As a further step, Mr. Edison, finding that

the resistance boxes were in the way, had some copper wire wound on one of the legs of the motor field magnet. In this way the resistance was put where it occupied the least room, and where it served also as an additional field coil in starting the motor. Various other developments and improvements were gradually introduced until the cessation of the work in 1882; but throughout the whole period current was fed to the motor through the track, and was supplied to the road by underground feeder cables from the dynamo room of the laboratory. In order to insulate the track from the ground, the rails were insulated from the ties by giving them two coats of japan varnish, baking them in the oven and placing them on pads of tar impregnated muslin laid on the ties. The ends of the rails were electroplated and not japanned, so as to afford good contact surface for the fish plates, and for the copper bonds, which were added to increase the electric continuity of the track circuit.

Early in 1883 the electric railway interests of Messrs. Field and Edison were brought together into the hands of one company. Soon after, at the Chicago Railway Exposition of that year, an electric railway was put in operation by Messrs. Field, C. O. Mailloux, F. B. Rae, and others, which still employed, however, the third-rail method. A circular track nearly a third of a mile in length, 3-foot gauge, ran along the gallery of the building and the locomotive, named "The Judge" after Chief Justice Field, hauled a car along this track. During the month of June, over 26,000 passengers were carried. Similar work was done with "The Judge" at the Louisville Exposition of the following fall. In this locomotive the motor was placed crosswise on the frame so that its armature was parallel with the sills. The armature shaft had connected with it a projecting shaft which transmitted motion by means of bevel gearing to a countershaft carrying two pulleys. These pulleys transmitted power by means of belts to the pulleys on the axles of the drivers. It will be observed that in this experiment, as in Edison's, the motor was placed above the floor of the car and not underneath it. An average speed of 8 miles an hour was made and a maximum speed of 12. The locomotive included original devices for controlling the current depending upon the resistance of a suitable rheostat to be cut in and out of the main circuit. The locomotive was 12 feet long and 5 feet wide and weighed about 3 tons. Current was picked up from the service or feed rail between the two outside rails by means of a traveling "vise," in the jaws of which were inserted bundles of phosphor-bronze wire so arranged, obliquely downward and inward, that whichever way the car moved, forward or backward, a good clean contact would be made on each side of the rail.

Another of the workers in the early eighties was Mr. Leo Daft, an Englishman, who was one of the first to make a commercial business of the construction of motors and of their operation from central power stations for the purpose of driving machinery in such cities as New York and Boston. After some trials of a Daft locomotive on the grounds of his company's works at Greenville, N. J., a line was constructed on the Saratoga and Mount McGregor railroad in November, 1883. This railroad was about 12 miles long with sharp curves and steep grades, and over it the locomotive "Ampere" ran, hauling a regular passenger car. As in many other instances, the motor in this case was placed above the platform of the locomotive. At each end of the armature shaft was keyed a pulley from which belts ran to large pulleys mounted on the countershaft, situated midway between the driving wheels; from the countershaft ran another set of belts to the driving wheels. The reduction of speed from the armature pulleys to the drivers was in the ratio of 8 to 1. On this road also a central rail was used to feed current to the motor, the current being picked up by small phosphor-bronze contact wheels, spring mounted to secure flexibility. During 1884 Mr. Daft built and equipped a small road on one of the long piers at Coney Island, New York's famous seaside resort, which carried 38,000 passengers in one season. In this the system of current supply was also by means of the track. A little later another Daft road was installed at the Mechanics' Institute Fair in Boston, carrying 4,000 or 5,000 passengers weekly for a month. The motor "Volta" used in Boston was then taken to the New Orleans Exposition and operated on a line about one-fifth of a mile in length, between the United States Government building and the main building. This line also carried several thousand passengers.

In 1885 Mr. Daft equipped for the Baltimore Union Passenger Railway Company a line running out through the villages of Hampden, Mt. Vernon, and Woodberry, a distance of about 2 miles, and reaching an elevation of about 150 feet above the city of Baltimore. For this branch two locomotives were built, the motors being placed low down on the floor of the car, and motion from the armature shaft to the car wheels being obtained by internal gears. At each end of the armature shaft a 3-inch phosphor-bronze gear was keyed, and these meshed with large gears 27 inches in diameter fastened to the axle of the driving wheels, the ratio of peripheral speed of armature and drivers being as 3.27 to 1. The track was equipped with a third rail to supply current, placed midway between the outer rails, which served as the return circuit. Part of the system was also equipped with an overhead trolley service. This suburban road continued in operation for some time, until it became part of a general network of electric railways equipped with more modern apparatus.

Mr. Daft, about this time, also equipped several other street railways in different parts of the country employing as a rule two overhead trolley wires, with two trolley contacts, so as to do away not only with the third rail as a means of current supply, but to obviate any use of

the track as a part of the circuit. The system of double overhead trolley, which will be referred to later, has continued in vogue in one or two places down to the present time. Throughout this period Mr. Daft was also engaged in a series of experiments on the New York elevated railroads, to which work allusion will be made elsewhere.

One of the men to whom the street railways owe much in their technical development was the late Charles J. Van Depoele, a Belgian, whose father was master mechanic for the East Flanders Railway System. Van Depoele's trade was that of a cabinetmaker, but he devoted all his leisure time to electrical experiments.

In the summer of 1869 young Van Depoele emigrated to this country and began in Detroit the manufacture of art furniture. With the income derived from his growing business he was able to indulge his taste for electricity, and soon made some of the earliest successful arc lights and dynamos for illuminating purposes. His greatest hobby, however, was the propulsion of street cars by electricity, upon which he had been working as far back as 1882. In the winter of 1882–83 Mr. Van Depoele had a short experimental line running in Chicago, and during the same year he operated a car at the Industrial Exposition in that city, taking current by means of an overhead wire. He was encouraged by the results obtained in this way, and in the fall of 1885 made a contract with the directors of the Toronto (Canada) Annual Exhibition to run, single track, a train of three cars and a motor car from the street railway terminus to the exposition, a distance of 1 mile. On this system, which was operated successfully and carried an average of 10,000 passengers per day, a speed of 30 miles an hour was attained. The track was used as the return circuit, and on top of the car was placed one of the first illustrations of the "underrunning" trolley now commonly employed. The contact wheel was carried by a pivoted beam, the latter being provided with a spring on one end pressing the wheel at the other end up against the underside of the overhead wire. A flexible cable connected this contact wheel with the switches, rheostat, and motor on the motor car. The illustrations of this old road show in crude form the modern central overhead wire, underrunning trolley and trolley poles, side bracket poles for suspending the wires, and the insulated track return.

It might be said that this was not a street railway in the strict sense of the term, although it ran through the streets. Mr. Van Depoele's next step was the equipment of a regular street railway at South Bend, Ind., where no fewer than five separate cars were operated at one time, something which had never before been attempted or even supposed possible. This road derived its current from a generating plant driven by waterpower. The equipment of the road consisted of open and closed four-wheeled cars. On each of the closed cars was placed a 5-horsepower motor, while a large open car was equipped with a 10-horsepower motor. The motors were placed under the cars between the wheels, and the axles were connected by means of sprockets and link belt. This innovation had been found to be desirable, as the motor was in the way when above the car platform, and the distance between the armature shaft and the driven axle was too great. Moreover, the motor, when above the platform, occupied space needed for passengers. According to Mr. Van Depoele's own account of this road, a variation was attempted in the trolley contact. The copper trolley wire one-quarter inch in diameter was suspended above the track by means of cross wires fastened to poles placed near the curb. From the underside of this copper wire hung a tiny car fastened to a flexible cable, which passed to the inside of the motor car, and was there fixed in connection with the switches, motor, etc. This car or trolley on the wire traveled with the car on the track and made a perfect contact. This device, and modifications of it, were seen on other Van Depoele roads, but were soon abandoned for the underrunning contact. On some Van Depoele roads, however, a form of overrunning trolley wheel was tried, which traveled along the upper surface of the trolley wire and was held in position by means of a heavy balance weight. In 1885 Mr. Van Depoele contracted with the president of the New Orleans Exposition for a road nearly a mile long, with a carrying capacity of about 200 people, to be operated on the grounds. This was equipped with a motor car and two large open cars. The motor in this case was placed in the center of the floor of the car, the two middle seats being removed for the purpose. This line was equipped with contact wheel, upward-pressure trolleys, the wheel making contact on the underside of the overhead wire, as at Toronto. The experiment at New Orleans, La., was followed by several contracts for roads at Minneapolis, Minn., Detroit, Mich., Appleton, Wis., and Montgomery, Ala. The road at the last-named place was equipped with 12 cars and began operation in 1886.

Considerable discussion arose as to the scope of Van Depoele's work and the importance of his inventions, not a little of which related to the underrunning trolley contact, one of the features which renders the modern systems commercially practicable. It was alleged that Van Depoele had simply carried out or modified ideas and suggestions already in existence. ' It was asserted, for example, that in systems of electric train signaling, some kind of a trail contact device or trolley had been employed to get current or signals from an overhead conductor to the instrument on the car, and that when it came to the operation of street railways, the difference in method was unimportant.

In reply to this contention it was pointed out that many able inventors, when first confronted by the problem of overhead contact, did not avail themselves of what had been suggested or developed in the electric

railway signaling art, but started out on the new and independent line of overrunning trolleys. So far as Mr. Van Depoele's work is concerned, it may be stated here as part of the historical record that the courts sustained his claims, and that in a well-known decision Judge Townsend of the United States circuit court said:

No one can read this record without being impressed by the fact that Van Depoele was more than a skilled mechanic in the art of electrical railway propulsion. The Patent Office has raised a presumption in his favor as an inventor by the grant of numerous patents to him. Some thirty have been introduced by complainant, several of which cover highly meritorious inventions which have largely contributed to the successful practical operation of the trolley roads throughout the country. In fact, the construction covered by his earlier patent for an overhead underrunning trolley shows that he appreciated the problems involved in varying lines and curves, and to a limited extent by said device ingeniously provided for their solution.

The inventors in the art of electrical propulsion, signals, or telegraphs, had failed to provide for an operative contact device at the distance from the car required for the operation of the underrunning trolley road except by unwieldy and impracticable structures on the roof of the car. They had failed to adequately provide for considerable variations from practically straight lines of travel. In their later attempts to do so, they had constructed or adopted contrivances which departed from the earlier devices now claimed to show lack of patentable novelty, and thereby furnished strong proof that the changes made by Van Depoele were not obvious ones. Defendant's expert is forced to admit that the advantages of an underrunning trolley were not obvious and that the earlier constructors must have been in doubt as to the efficiency of such a system, and that the prior underrunning overhead devices would have led a person away from rather than toward an upwardly pressed hinged conductor. In these circumstances the new use of old principles does not fall within the rule of a double use. I have been unable, therefore, to adopt the view of counsel for defendant, that the art of conducting electricity from a conductor to a translating device on a moving vehicle was sufficient to enable the skilled mechanic to construct the device of said first patent. In respect of the underlying fundamental object and result of the paper patents for signaling devices and the Van Depoele device, the transfer was to a branch of industry but remotely allied to the other, and the effect of such transfer has been to supersede other methods of doing the same work.

That no great confidence was entertained in the early eighties as to the feasibility of the overhead contact method of obtaining current for an electric car is to be inferred from the expensive installation made in Cleveland in 1884 by Messrs. Edward M. Bentley and Walter H. Knight, and put in operation by them in August on the tracks of the East Cleveland Horse Railway Company. Two miles of the road were equipped with a little underground conduit placed between the rails and running the entire length of the road. In this conduit was placed the feeding conductor, and the high voltage current for the Brush series wound motor was picked up from it by means of a "plow," which passed through the slot in the conduit, and by sliding contact on the conductor maintained connection with the sources of power. A photograph of the first car equipped to travel over this track is here shown. It was an old horse car equipped with a small arc lighting dynamo driven as a motor. Two other cars, with similar motor equipment, but with variations in gearing were also tried; the last being furnished with spur gearing. The body of the gears was built up of paper, like a paper car wheel, in order to deaden the noise. In the third car, also, the motor was carried by a separate truck, its shaft lying longitudinally of the car, and geared with a parallel countershaft which drove the two axles by bevel gearing. This line, which was in many respects a forerunner of the conduit systems since successfully operated in our largest cities appears to have worked very well, not only in ordinary weather, but through the unusually deep snow of the winter of 1884–85. As a matter of fact this seems to be the first regular electric street car equipment installed in America, operating for fare like the old horse cars.

The same Bentley-Knight system was laid down on Fulton street, New York city, with the contact conduit at one side instead of in the center between the rails, but for some reason this road never went into operation and was afterwards torn up. Another Bentley-Knight line was later constructed in Boston and remained in operation for some time, but was finally superseded by trolley methods, although apparently it can not be said that the relinquishment of the effort was due to any inherent fault of the underground conduit method. The time simply was not ripe for this development, nor had the prejudice against overhead wires in cities yet become so strong as to prevent the overhead network appearing even where an underground system had already shown itself sufficient to the exigencies of the case. The further important developments of the conduit system will be treated later in a discussion of this branch of the art.

At about the same time some work was being done in Kansas City, Mo., by Mr. John C. Henry, a telegraph operator of considerable ingenuity. It appears that a line had been projected to run from Kansas City to the county seat, Independence, some 10 miles away, and Mr. Henry built his little road with the idea of demonstrating the advantages of electric traction to the owners of the proposed Independence line. A number of new features were introduced, the credit for which was claimed by Mr. Henry, and which certainly belonged to the elementary stages of the practical art. Thus the plan was proposed of suspending the working conductor over the track by means of span wires supported at the side of the road, thus leaving the underside of the conductor free for easy access by the traveling contact. As a matter of fact Mr. Henry used double overhead wires, supported both by brackets and by span wire construction, the wire being No. 1 gauge of hard drawn copper. Mr. Henry was of the opinion that the use of the word "trolley," as applied to overhead wire roads, originated on his little Westport line. His first traveling contact was a little 4-wheel carriage

which gripped to and ran along the underside of the wire. It was attached to a flexible cable, which completed the circuit to the motor, and the device was trollied or hauled along by the motor car underneath. At first it was called a "troller," but the name was soon changed to "trolley" by the employees and the public. This was long before trolley roads became popularly known as such.

The motor employed by Mr. Henry was a small Van Depoele dynamo or generator, which developed about 5 horsepower. It was mounted in an iron frame with variable speed changing gears, was supported at one end on the car axle, and was engaged with gearing thereon. The front platform was lowered, permitting the commutator end of the motor to project thereon and to be spring supported. This motor was series wound; in other words, the field magnets were in series with the armature. It was regulated by the use of resistance. This road was visited and studied by a great many people, including Mr. Van Depoele and others interested in the development of the art. In the fall of 1885 Mr. Henry secured heavier machinery and moved from the Westport road to some steam railway tracks owned by the Fort Scott and Gulf Railway Company, where he experimented with high speeds, with the hauling of freight cars, and with grades and snow. In the winter of 1885–86 Mr. Henry arranged to equip the East Street Railway in Kansas City, which had a mile of track completed and upon which four motor cars were placed. Each car had a single 25-horsepower motor attached to one of the axles, the motor projecting through the car, its working parts all being in view of the motorman. The motor was connected to the car axle by planetary gear and the armature ran constantly. The car was operated by the aid of two vertical levers—one to connect or disconnect the motor from the car and the other to apply friction wheel brakes. In these motors the fields were so constructed that their resistance could be varied and the motors be regulated without separate resistance boxes, and the road was arranged to operate at a pressure of 500 volts. In 1887 Mr. Henry contracted to build several roads in southern California, all the machinery for which was built in a crude way in Kansas City. The performance was remarkable in view of the remoteness of the inventor from all the facilities necessary for good scientific work.

Coincident with the work being done at Kansas City by Mr. Henry was that attempted even farther west by Prof. Sidney H. Short, then in the physics department of the University of Denver. As early as the month of February, 1885, a company was organized, under the name of the Denver Electric and Cable Railway Company, to build and operate an electric railway in the streets of that city. An experimental track 300 or 400 feet in length was laid in a circle on the university grounds, and a small car called the "Joseph Henry" carried a great many hundreds of people over it. This work attracted attention and led to more ambitious efforts which, however, were not successful. Mr. Short's work was interesting from its demonstration of the fact that some principles, successful in other departments of electricity, could not be applied to the street railway. There are, broadly speaking, two circuit systems of operating electric devices, namely, the series and the parallel or multiple. In the series system, upon which telegraphic instruments have been largely operated and upon which all the early arc lighting development took place, the current passes successively through every motor mechanism on the circuit, these mechanisms being disposed along it like beads on a necklace, and each device receiving sufficient current to energize it. In arc lighting the circuits extend over large territories, with lamps sparsely scattered here and there, and the series principle is well adapted to it, supplying current at high pressure sufficient to overcome the resistance of the long, thin line wire, and giving each lamp the needed electric motive force and quantity of current. But in street railway work where the device, instead of needing a small quantity of current, requires several horsepower, and where the high voltage would be brought into dangerous proximity to the passengers and vehicles, the difficulty of using the series system would seem insurmountable. For this reason ultimately, if not at first, nearly all inventors whose names have been mentioned constructed their systems to operate upon the parallel or multiple plan, under which the incandescent lamp had already been successfully operated. In the parallel plan the current receiving devices, such as lamps or motors, are not strung along in series but are arranged similarly to the rungs of a ladder, each device being on one step of the ladder, so that as current flows from the generator at a moderately low pressure into the system, represented by the two uprights of the ladder, each step receives only the "divided" current that it needs and for which it has been designed. Applying the kindred analogy of two large water pipes from a reservoir with smaller pipes crossing between them, it will be understood at a glance that from the supply of water circulating in the system, each smaller pipe will allow to flow through it only the quantity of water which its capacity permits it to receive, and no more. It will also be readily understood that any working device, such as a tap or paddle, in any one of the smaller pipes, might easily be cut off or cease to operate, without in any wise interfering with any of the other devices of the same kind in any of the other pipes. Not only is an even greater flexibility of current utilization obtained by this method, but all the current in the system can be set flowing at a predetermined low measure, within the limits of safety. On the other hand, in the series system, in spite of all that might be done to the contrary, the failure of one device to operate would be extremely likely to cut off either the entire system or all the line

on the other side of it. Moreover, every addition to the length of the system and the number of devices put on it would require an increase in the pressure or potentiality, in order that the required amount of current might be delivered to the device farthest away as well as to the one nearest the point of current supply.

Professor Short, however, in those early days, was of the opinion that the greatest economy in electric railway work, as in arc lighting, could be obtained by the use of a constant series current of small amount, and for several years, with great ingenuity and perseverance, he endeavored to work out a system of this kind. Various forms of conduit were used to hold the conductor for current supply under the cars, and great improvement was made in this respect. In the first form, for example, a sliding bar contact was carried under the car which traveled in the conduit, and as this bar passed through split contacts in the conduit the current was led into the car. But the broad series plan was destined to failure, whether in the conduit or in the overhead trolley form, although some of the later methods of conduit construction were suggested by these experiments; and the road soon went out of existence. Professor Short was not discouraged, however, but continued for some time after to experiment with the series system until, at last, the success of the parallel system induced him to devote his energy entirely to that method of operation as well as to efforts to improve other features of the work, such as motor construction and suspension. Professor Short is entitled to the credit of using motors which were series wound, i. e., had the field coils and armature in series, as in present practice, while he was also early in his recognition of the superiority of spur gearing with double reduction of speed for the motors employed.

It is interesting to study the lives of men who have worked along these same lines and to note how near some men have come to success, finally abandoning their efforts altogether, or having their work remain neglected and unknown for years. A typical instance of this kind is that of Mr. George F. Green, of Kalamazoo, Mich., a jobbing machinist, who, as early as 1856, built some small electric motors and a circular track, upon which he operated a small car by connecting a stationary battery to the rails, so that the current would pass from the rails up through the car to the motor and then into the other rail and back to the battery; but, like everybody else, he soon discovered that primary batteries were not good for such work. Although he did not abandon his electric railway ideas, he does not appear to have put them again into execution until 1875, some twenty years later, when he contrived to interest some one in the construction of an electric railway with a track 200 feet long. This attracted a great deal of attention locally, and was described in the Kalamazoo newspapers. This road depended upon batteries for current. It could carry about 100 pounds of freight or one passenger. The car had a switch or circuit controller, which in one position opened the circuit to stop the car, and in another reversed the circuit, while at the end of the line the switch struck against a stationary finger which reversed it, causing the car to run back again, the reversing lever being operated by hand. Mr. Green stated that it was his intention to use a dynamo instead of the battery to furnish the current, because it was more economical; but for various reasons, such as lack of funds or of urgency, he did not secure it. It was several years before he secured the patent that gave him the desired status. By this time, however (1891), numerous trolley systems had come into operation all over the country, and Mr. Green's patents were superseded. While he would appear to be entitled to considerable credit for his early ingenuity, no trace is discoverable of benefit derived by the art as a whole from any of his suggestions or improvements.

In the same class with Green should perhaps be included Dr. Wellington Adams, of St. Louis, Mo., a man whose name was at one time quite conspicuous in the controversies over the development of the electric railway, and who has at least some claim to the discovery of one or two of the fundamental principles of the art, although litigation did not result in his favor. As early as 1879 Doctor Adams, then connected with the medical college at Denver, Colo., constructed a small model of an electric railway which was used to demonstrate a lecture on electricity delivered at Colorado Springs. From that time on, and during the period of his residence in St. Louis, Doctor Adams was active in the prosecution of his ideas on electric railways, and a lecture of his on the "Evolution of the Electric Railway," in its commercial and scientific aspects, delivered before the Engineers' Club, of St. Louis, as early as 1884, reveals a remarkable grasp of important principles. Discussing the plans which had been tried of mounting an electric motor on a car and connecting it by means of a leather or chain belt, or by a train of cogs, with the car axle, he pointed out that it was desired to dispense as much as possible with intermediate gears and to connect the motor directly with the axle.

Doctor Adams was also an early advocate of the independent car with its motor equipment, seen in the trolley car of to-day as distinguished from the locomotive type, in which one vehicle containing all the motive power hauled a train of unequipped cars or trailers, and he set himself to work to devise a practical method of applying the power on each car. He decided that the armature of the electric motor must run at a high speed and that its power must be transmitted to the wheels of the car by means of a positive gearing. He illustrated his idea by two types. In one type the motor was actually built into each driving wheel, the wheel being formed of two separate electro-magnetic systems, the field and the armature, both capable of revolving. In this way, obviously, all gearing was dis-

pensed with and the driving power was distributed to each wheel and delivered directly at the point of traction. In another type, which was shown in operation and which conforms more nearly to modern practice, Doctor Adams took the field from the structure of the wheel and built it solidly around the axle between the wheels, the armature, as before, being mounted on the axle and inclosed by the field of the motor in such a way that the revolutions of the armature would result directly without any intervening gears in the revolutions of the car axle and wheels. This mechanism was flexibly suspended by springs from the sills of the car, but not otherwise connected with it; and although such a system would naturally constitute a gearless motor, the power in the electric truck shown by Doctor Adams was transmitted through an epicycloidal train of friction gearing at each end of the armature. As all the parts were in line and moved together, the field being rigidly attached to and forming a part of the car axle box, a motor system with little wear and tear or liability to get out of order resulted. Besides this the electric motor suspended from the sill of the car gave protective flexibility against the inequalities of track, sudden breakings, etc.

This early experimental work of Doctor Adams constituted in later years a large share of his claim to recognition, but he also attracted attention by a scheme for a high-speed electric railway, to be constructed between Chicago, Ill., and St. Louis, Mo., for use at the time of the Columbian Exposition in 1893. At that time Doctor Adams advanced several ingenious ideas, and proposed boldly to utilize train speeds and high pressures of current, which are to-day, in 1903, still the subject of investigation. The most notable work along this line is that being done in Germany, where, on the Zossen Military Railroad, near Berlin, the German Government and a syndicate of manufacturers, aided by some of the best technical talent in the Empire, have been experimenting with cars and locomotives, and have actually succeeded in attaining a velocity of over 130 miles an hour, in some cases applying directly to the vehicle and to its motors an alternating current at the unprecedented pressure, for tractive purposes, of 13,500 volts. The difference between this work in Germany, which promises to be fruitful of valuable results, and that of Doctor Adams is that, while apparently large sums of money were raised for the Chicago-St. Louis line, it never materialized so far as the public was concerned, and remains a curious chapter of failure pointing in the right direction.

Without in any way belittling the splendid work done by Van Depoele and the other pioneers whose efforts have been reviewed briefly, it must be admitted that the modern era in street railway work dates as much from the equipment of the street railway system at Richmond, Va., by Frank J. Sprague, as from any other landmark in the history of this industrial development. Mr. Sprague, who was a lieutenant in the United States Navy, from which the electrical ranks have drawn some of their most notable recruits, turned his attention to electricity while quite young, and was one of the fathers of the modern power motor. Encouraged by the cooperation of Mr. Edward H. Johnson, then at the head of the Edison lighting system, Mr. Sprague was able to perfect his motor, and to introduce it in a large way, for those days, upon the low-tension incandescent lighting circuits of the Edison company scattered throughout the country. Mr. Sprague and his associates, however, not satisfied with this field, extensive as it promised to become, soon turned their eyes in the direction of electric street railways, which, in 1887, were quite short and had but a few cars. A contract was signed for the equipment of the Union Passenger Railway at Richmond, upon which no fewer than 40 cars were to be placed, 30 of which were to be in use at the same time. This contract called for as many electric cars as were then in service in this country, and the grades in Richmond were such as were generally believed to be beyond the climbing capacity of any electric vehicle. There were 29 curves on the road, 5 of them less than 30 feet radius, and the track was a 27-pound rail loosely jointed, laid in Virginia clay, and some of the grades reached 12 per cent. The contract called for the complete equipment of this road in ninety days. After considerable experimental work, with troubles and disasters of every description, the road was opened for regular service about February 1, 1888.

Among the general characteristics of the system was a small overhead trolley wire, with which the underrunning trolley made contact reenforced by a main conductor, supplied with current by feeder circuits from the central power house. The track constituted the return circuit, the rails being bonded together and connected with a continuous conductor, which was also connected with ground plates and with the water and gas systems of the city. The working potential of the line was 450 volts and the motors operated on the parallel or multiple arc system. The two motors under each car had single reduction gears—that is, one gear was placed on the axle and the other on the armature shaft, and the motors were flexibly suspended. These motors had also fixed brushes, and were operated by the motorman through rheostatic series parallel controllers, with sectionalized field coils at each end of the car. Very soon the single gears had to be abandoned for double reduction gears, although a reversion to the single reduction gear soon took place. The motor armatures were double ended, having a commutator at each end cross connected, so that but one top brush on each commutator was used. Although most of the motors were built in one of the best electric shops of the country, they were so inadequate for the

heavy work demanded of them that every one of them had to have its field magnets and armatures rewound, and its commutators changed.

At that time it was generally believed that an ordinary 16-foot car could easily be operated by a couple of motors of from 7½ to 10 horsepower each, and even one motor was considered equal to a task which had previously been discharged by a team of mules or horses. It did not take very long for the managers of the new electric roads to learn that while motors of 1 or 2 horsepower might be sufficient to keep the car moving, much greater power was needed to start up the car from a state of rest, especially with a heavy load of passengers, and from that time on the capacity of the motors was increased. A great amount of attention was also given to their insulation—a necessary precaution, as the motors were then run entirely open and exposed to dust, mud, and weather. There was also a great deal of trouble with the brushes on the motors, and before carbon blocks were adopted finally for this purpose brushes built of copper and even of solid bars of bronze were tried. The first flat brushes used on the Sprague motors were solid or of laminated copper, which wore through quickly, bent over, and formed an arc around the commutator. Oblique and tilting forms of brushes were also put in use, but the resultant wear upon the commutators was very great, necessitating endless repairs. Moreover, many difficulties developed in connection with the overhead system, and Mr. Sprague states that probably not less than fifty modifications of trolley wheels and poles were used before what is now known as the "universal movement" type was adopted. The same was true of overhead construction at curves, and at the switches or turnouts where the trolley wheels had to leave one line of motion and take up another.

In spite of all the difficulties, the Richmond road continued operation and attracted wide attention in the street railway world and in financial circles. At that time the question of equipping the West End Railroad of Boston, one of the largest systems in the country, with cable, was being considered; one of the arguments for its adoption was that with the cable a large number of cars could be kept in motion at once, which, in the opinion of street railway managers, was not yet possible with electricity. The president of the Boston system, with some of his officers, visited the Richmond road, and was shown no fewer than 22 motormen starting up their cars one after the other as rapidly as headway could be obtained. This experiment was conclusive, and settled the fate of the Boston cable project. But successful results were attained only by ceaseless effort and unremitting experiment. In winter the wires would become so coated with sleet that the trolley wheel could not make contact with the incased wire. This trouble has since been met by sleet cutting devices; but at that time it was nothing unusual to put a man on top of a car with a broom or stick to pound the trolley wire and free it of ice, or even to hold up the trolley wheel in contact, acting as a human trolley pole. Another difficulty was experienced with thunderstorms. At Richmond the long overhead circuit, entirely unprotected by lightning arresters and with numerous ground connections through the motors and lamp circuits, provoked constant discharge. The line was frequently struck, the discharge often passing through the incandescent lamps and shattering the carbon filaments. After a time the engineers learned, as a safety precaution, to turn on the lights during a thunderstorm. During such storms, also, the discharge would sometimes go to ground through the motor fields, burning them out, and sometimes through the controllers. Choke coils to fend off the lightning were soon installed on the cars, and various kinds of lightning arresters were devised, but such discharges long remained a serious impediment to trolley work.

It is, of course, quite beyond the scope and aim of this report to give credit to each inventor for his specific contribution. The intention is simply to give a short continuous record of the stages by which the street railway system has reached its present development. But the separate steps of success and achievement have become associated with the names of certain individuals, and in some instances the decisions of the courts have reenforced or determined the weight of public opinion. This was true in the case of Van Depoele in his perfection of the underrunning trolley, so was it also in the case of Sprague in his contribution to motor suspension. A decision of Chief Justice Shipman in the United States circuit court of appeals in the second circuit is here quoted because it presents succinctly the state of the art and describes Mr. Sprague's service. It is a decision which has been quoted by other judges in litigation on kindred issues. Justice Shipman said:

As soon as the use of an electric motor for the propulsion of cars upon a street railway was thought to be attainable divers methods were invented which were intended to enable the motor to act efficiently, economically, and certainly upon the car axle. At first the motor was supported by or on the car body and afterwards it was upheld upon a separate platform. The state of the art upon the subject is so fully stated by Judge Sanborn in Adams Electric Railway Company *vs.* Lindell Railway Company (77 Fed. Rep., 432, 40 U. S. App., 482) that it need not be restated here. Sprague hung the motor under the car body directly upon the axle of one of the pairs of wheels by an extension or solid bearing attached directly to the motor. He used a magnet having a yoke and pole pieces, and by sleeving one end upon the axle he caused the armature, which was carried between the poles of the magnet, to be held with firmness and the armature shaft to be held in alignment with the car axle. The opposite end of the motor was upheld by springs extending to a crossbar on the truck frame. He also relieved the weight upon the axle by a spring support from the truck of the vehicle. The motor was thus hung below the car, one end being centered upon the axle and the other end being flexibly attached by springs to the truck frame. The effect of the mode of construction is explained in the specification as follows: "The armature being carried rigidly by the field magnet, these two parts must

always maintain precisely the same relative position under every vertical or lateral movement of the wheels or of the car body; and as the field magnet which carries the armature is itself centered by the axle of the wheels to which the armature shaft is geared, the engaging gears also must always maintain precisely the same relative position. At the same time the connection of the entire motor with the truck is through springs, so that its position is not affected by the movements of the truck on its springs." The simplicity and comparative lightness of the general plan upon which this motor was constructed and the adaptability of the means to the required result made the motor successful, and other preexisting methods of construction disappeared to a great extent.

Any history of modern street car development must include the development of elevated railways, which, occupying main lines of thoroughfare, with tracks elevated above the street surface, so as not to interfere with ordinary vehicular traffic, transport a large number of those who travel daily from one part of an urban center to another. Such roads have been peculiarly, though not exclusively, an American development and are restricted in this country to a few of the largest cities, such as New York, Brooklyn, Chicago, Boston, and Kansas City, in most of which they have already become an integral part of the surface street car systems, operating under the same management and providing for exchange of traffic. This subject will be dealt with in another part of the report, but it is proper here to note that some of the earliest work of such men as Daft, Sprague, and Field in the application of electric motors to short haul passenger transportation was done on the elevated roads of New York, where many important lessons were learned. The use of steam on the elevated roads continued for many years without complaint, and the service rendered to the various communities was remarkable for its efficiency, safety, and regularity. But whether from the increased amount of travel, necessitating more frequent trains, or from the inconvenience and discomfort due to dust, ashes, escaping steam and gas, dropping oil, and the like, or from the inability of steam locomotives of the necessary medium size to haul heavier trains at higher speeds over the structures, the fact remains that by 1885 a plan had been formed for equipping sections of the Ninth Avenue and the Second Avenue Elevated railroads in New York city with electricity.

Mr. Daft equipped the Ninth Avenue line from Fourteenth street up to Fifty-third street, a distance of 2 miles including a heavy grade. A third rail was laid between the two traction rails as a conductor to deliver current to the motors, and the outer rails were made the "return." The electric locomotive built to haul the train of cars had driving wheels 48 inches in diameter, and was equipped with a motor of 75 horsepower, having a normal speed of 18 miles per hour and a maximum of 40 miles. The complete motor weighed 9 tons, and was 14 feet 6 inches in length, with a normal width across the standard gauge track of 4 feet 8½ inches. This motor was supported at the rear on a shaft resting in bearings. Its front end was supported by a long screw which passed through a threaded eye. This screw was turned by a hand wheel. The armature shaft carried a friction wheel 9 inches in diameter, bearing upon a larger friction wheel 3 feet in diameter, geared to the axle of the main driving wheels. Thus, by turning the large screw, the upper friction wheel could be pressed against the lower to any desired degree, and in this manner power was transmitted by friction from the armature to the drivers, the amount of friction being regulated at will according to the load. Mr. Daft thus obviated the necessity of belts and pulleys, sprockets, link belts, etc. By means of the screw, also, the motors could be raised to clear the driving wheels, so that the armature could be taken out and inspected or repaired with convenience. This locomotive was provided with electric brakes, consisting of large electro-magnets, which, being energized by current from the track, were attracted by the wheels, and pressed against them like an ordinary brake. The terminals of the compound winding of the motors were brought to a regulator or controller, convenient to the hand of the motorman in front of the locomotive, and by the motion of a lever across the terminals, the resistance of the field magnets could be altered, producing corresponding changes of speed. The current was picked up from the central third rail by a bronze contact wheel 15 inches in diameter. The motor proved too light for its work, and was afterwards reconstructed. But neither then nor now does it appear that the locomotive principle was found best adapted to street electric traction, however well it may have been adapted to steam traction.

Meantime, Mr. Stephen D. Field, as representative of the Edison-Field interests, began work on the Thirty-fourth street spur track of the Second Avenue Elevated road, introducing an electric locomotive which, outwardly at least, resembled nearly all of the electric locomotives which have later come into actual service. But in the Field locomotive the motor was mounted upon the rear truck, and was connected to the driving wheels in a manner exactly like that employed in the ordinary steam locomotive. In other words, the motor shaft was directly connected with the drivers by means of a crank and side bar. Another of the features of this machine, which was series wound, was that it was regulated by means of a liquid rheostat or resistance placed in the cab. This rheostat consisted of a trough divided into two compartments filled with acidulated water. A metal plate on either side of these troughs acted as a terminal for the feeding circuit which was led in by two copper cables. The speed of the motors was regulated by the insertion or withdrawal from the troughs of two slabs of slate suspended over the troughs and operated by a long lever, thus varying the resistance from almost nothing up to any desired degree. Mr. Field had other ingenious devices for reversing, for shifting the brushes

to prevent sparking at the commutator, etc. This locomotive had a total weight of over 13 tons, and hauled a passenger car which was regularly hauled by a 13-ton steam locomotive. It also handled easily one of the regular large elevated coaches up grade at 8 miles an hour, and was often operated under a potentiality as high as 1,100 volts.

In contrast to Daft and Field, Sprague advocated the abolition of the locomotive and the installation of one or more motors under each car. His arguments appear to have been final and conclusive. The locomotives have disappeared and motor cars have taken their place. Mr. Sprague made his experiments on the Thirty-fourth street branch of the Third Avenue Elevated, placing two motors on the car trucks. The motors being thus grouped in parallel on a constant potential circuit, and driving from opposite ends of the motor shaft, a very intense rotary effort or torque was secured in starting, by having an intense magnetic field and raising the armature potentiality gradually. A system of braking was tried which consisted in converting the energy of the train into current, delivered back to the line from the motor, which thus temporarily became a dynamo without reversal of contacts. The current was taken up from a central rail by three contact conductors, two of which were bronze wheels working on pivoted arms under compression springs. Special switches were provided for handling the motors, breaking the main circuit, reversing the armature circuit, cutting the armature partially from the line, and closing it upon a local regulating apparatus. A potentiality of about 550 volts was used, current being obtained from 5 Edison incandescent lighting dynamos placed in series, the circuit being led on Western Union telegraph poles to the track from a power plant almost a mile away. A number of other interesting features were included in these experiments, but evidently the time was not ripe for the change in New York. It was not until fifteen years later that electricity was finally adopted as the motive power of the New York elevated system, although meanwhile it had been adopted with success on the elevated systems of Chicago, Brooklyn, and Boston. The demonstration made at the World's Fair in Chicago in 1893 was sufficient warrant for resorting to electricity on those roads. An elevated structure known as the Intramural Railway made an almost complete circuit of the grounds, being nearly 3 miles in length, comprising 14,800 feet of double track and 1,900 feet of single track. Over this road were run 15 trains, each consisting of 3 open trail cars and a motor car. Each car was mounted on double trucks and was 50 feet in length. The trailers when loaded weighed 22 tons and the motor car 30 tons. Each motor car was equipped with 4 motors—one on each axle. The motors were single reduction, so geared as to work at a maximum speed of 35 miles an hour, and were capable of an output of about 135 horsepower, thus giving each motor car something over 500 horsepower. The current was picked up from the track by means of a third rail placed outside the traction rails, with a sliding contact on the motor car. Current was furnished from a special power plant, with a generator of 2,000 horsepower, a capacity theretofore unknown in connection with street railway operation. This road remained in operation throughout the fair, and is reported to have carried with success and safety no fewer than 125,000 persons in a single day. After this no question remained as to the practicability of operating extensive elevated lines with electricity.

The record of experiments would not be complete without a reference to storage batteries, which at first gave great promise, but which, from various causes, have since been almost entirely abandoned. All of the earlier experimental work with electric traction depended upon primary batteries as a source of current. The vehicle in some of the larger types, as, for example, that of Professor Page, at Washington, carried its own battery and was thus self-contained. There are so many obvious advantages in a self-contained vehicle that no wonder need be entertained at the persistence with which these earlier attempts were renewed, when the storage battery came to the aid of experimenters. A battery car does not require a cumbrous system of overhead wires more or less disfiguring to the street, nor does it require a third rail, or a complicated system of conduit construction as in the case of cars with underground contacts reached through a slot in the track. Neither do such cars require an elaborate system of mains and feeders for bringing the current to the track from the power house, nor for effecting the return circuit. Moreover, in case the power house is for any reason temporarily thrown out of service, each car with its storage battery is equipped with enough current to maintain its schedule, whereas with trolley or conduit cars all the cars out on the road are instantly stopped the moment the current is cut off, and are compelled to stand still until the current can be thrown on again.

These and other considerations led to interesting experimental work as early as 1880 and 1883, both abroad and in this country. Storage battery cars were put in service in New York city, Philadelphia, Washington, and elsewhere. The most ambitious work of this character was done in New York city in 1887 and 1888 with the system of Mr. E. Julien, of Belgium, as a result of which 10 or 12 cars were in operation for a considerable time on the Fourth Avenue road. The ideas of Mr. Julien were considerably modified by Mr. C. O. Mailloux and excellent results were obtained, while other encouraging experiments were made in Philadelphia under the direction of Mr. Anthony Reckenzaun, of Vienna. Simple as the storage battery idea is in conception, it proved to have a great many difficulties in its application. Some of these arose in connection with the early types of storage batteries, which were found quite inadequate to withstand the strain of street

railway work. Batteries broke down very rapidly under the heavy discharge of current necessary at intervals and proved liable to short circuit from jolts and concussion on the tracks. The weight of the batteries also proved a considerable drawback, the cells first used weighing not less than 100 to 125 pounds per horsepower hour of energy stored, which limited the radius of the car very seriously. Lighter cells giving an output of 1 horsepower per hour with 50 to 75 pounds of battery were found to be too fragile for such work. Another difficulty which proved insurmountable was the annoyance to passengers from sulphuric acid gas escaping from the cells. Moreover, the acid scattered by the jolting of the car corroded and weakened its structural material. Another difficulty arose in the handling of the relays of batteries at the power plant, and various ingenious devices and contrivances were employed by which the exhausted batteries, when they came in, could be quickly exchanged for batteries freshly charged. To obviate the necessity of any such mechanism the batteries were sometimes left on the cars all the time, but this, of course, necessitated the doubling of the rolling stock. For several years experiments with the storage battery continued with varying success. But although a few such cars were in operation as late as 1902, as shown by the statistics, the last of those in New York city were withdrawn from the streets in 1903 while this report was in press.

# CHAPTER II.

## ROADBED, TRACK, AND ELECTRIC CONSTRUCTION.

### I.

#### ROADBED AND TRACK.

With regard to the statistics of track and roadbed it may be pointed out that at the census of 1890 the railways that used motive power other than steam were confined almost exclusively to urban districts, and were properly classed as "street railways," but since then the application of electricity has enabled these roads to extend their lines greatly in rural districts, and a considerable proportion of the trackage is now outside the limits of cities, towns, or villages. That the use of electric power has been the principal factor in the development of these railways during the past twelve years is shown by Table 4, page 8, which presents for the years 1902 and 1890, the number of miles of single track in the United States, classified according to the motive power used.

The increase in the length of track is confined entirely to the railways operated by electricity. The mileage operated by this power increased from 1,261.97 miles in 1890 to 21,901.53 miles in 1902, while a decided decrease is shown in the trackage for each of the other classes of power. Single track roads are characteristic of rural districts, and the fact that the percentage of increase in length of line is greater than in length of track is due principally to the great development of interurban single track lines since 1890. In some cities, as, for instance, in Philadelphia, owing to the narrowness of the streets, the railways are sometimes single track, going out on one thoroughfare and returning on an adjacent one.

*Track statistics.*—The 22,589.47 miles of track reported for 1902 consisted of 16,651.58 miles of first main track, 5,030.36 miles of second main track, and 907.53 miles of sidings and turn-outs. The further segregation of this trackage according to power used, ownership, and location for the United States and for each state and company is shown in Table 94. Table 86 presents the totals for the United States, and shows the mileage of each of the different classes of track and the percentage which each class is of the total.

TABLE 86.—*Single track mileage and percentage each class is of total: 1902.*

| CLASS OF TRACK. | Single track mileage. | Percentage of total. |
|---|---|---|
| Total | [1] 22,589.47 | 100.0 |
| First main track | 16,651.58 | 73.7 |
| Second main track | 5,030.36 | 22.3 |
| Sidings and turn-outs | 907.53 | 4.0 |
| Overhead trolley | [1] 21,302.57 | 94.3 |
| Other electric power | 611.44 | 2.7 |
| Compressed air | 6.06 | [2] |
| Animal | 259.10 | 1.1 |
| Cable | 240.69 | 1.1 |
| Steam | 169.61 | 0.8 |
| Trackage owned | 19,038.33 | 84.3 |
| Trackage leased | 3,551.14 | 15.7 |
| Operated under trackage rights | 560.92 | 2.5 |
| Constructed and opened for operation during the year | 1,549.73 | 6.9 |
| On private right of way owned by company | 3,424.96 | 15.2 |
| On private right of way not owned by company | 377.11 | 1.7 |
| Located within city limits | [3] 13,208.24 | 65.8 |
| Located outside city limits | [3] 6,855.58 | 34.2 |
| Equipped with cast welded joints | 1,642.68 | 7.3 |

[1] Includes 12.48 miles of track duplicated in reports of different companies.
[2] Less than one-tenth of 1 per cent.
[3] Exclusive of the mileage of Massachusetts.

Of the total mileage, 21,914.01 miles, or 97 per cent, were operated by electric power, and 416.36 miles, or 1.9 per cent, by other mechanical traction, while only 259.10 miles, or 1.1 per cent, were operated by animal power, as compared with 69.7 per cent in 1890. Even this heavy preponderance of electric traction has been increased during the preparation of the present report.

Of the total trackage in use by all companies, 84.3 per cent was owned by the operating companies and 15.7 per cent was operated under lease. The mileage of track constructed and opened for operation during the year covered by this report was 1,549.73 miles, or 6.9 per cent of the total; but this does not cover all of the track under construction. A number of miles of electric track were in various stages of completion, but it was impracticable to fix upon any stage of the work at which the trackage could be enumerated other than that of actual completion.

The statistics concerning track located on private right of way refer particularly to rural electric railways. Many of these, after the manner of steam railways, have bought or have had surrendered to them a separate roadbed, either adjoining or independent of

the highway. It appears from the reports that 3,424.96 miles of single track were on private right of way owned by the company. Occasionally the railway is built on a private right of way not owned by the company, an example of which would be a toll bridge owned by a bridge company, to whom payment for the privilege of using it was made. There were 377.11 miles of track on right of way of this character. Many of the new interurban electric roads run right across the country, making little use of highways, to which street railways have previously clung so tenaciously.

The inquiries concerning the location of track—whether within or without city limits, were made with the intention of ascertaining the relative length of track operated in urban and rural districts, respectively. In a number of cases it was impossible to determine exactly the trackage that should be assigned to these two subdivisions. In some instances the track was within, or passed through, thickly settled communities that were not organized as cities or towns, and therefore had no corporate limits, and it was difficult to obtain the length that should be considered as within the urban district. In the New England states densely populated communities are often legally part of the town government, which also includes rural districts. Many companies in Massachusetts reported that it was impracticable to make the distinction, and accordingly the trackage for that state has not been included in this classification. For the United States, exclusive of Massachusetts, 13,208.24 miles of trackage, or 65.8 per cent of the total, were reported as within urban limits and 6,855.58 miles, or 34.2 per cent, as outside of such limits.

The increase in the trackage is due not only to the building of new lines, but largely to the extension of the lines of established companies. This is illustrated by Table 80, in which the operating companies reporting in 1902 and 1890 are grouped according to length of line operated.

The average length of line per operating company for all companies was 20.38 miles in 1902, as compared with 7.41 miles in 1890. Thus the average operating company in 1902 controlled almost three times the length of line that was controlled by the average company in 1890. In 1890, of the companies reporting, only 8 operated more than 50 miles of line, while in 1902 the number of such companies had increased to 69. Of the total number of companies reported for 1890, 94.9 per cent operated less than 20 miles of line each, and their combined length of line amounted to 71.5 per cent of the total in the United States; in 1902 corresponding percentages were 75 and 30.7, respectively. Thus, while there are still a large number of companies that operate less than 20 miles of line, the proportion of the total length of line operated by them is not half so great as in 1890.

*Roadbed construction.*—It is needless to say that one of the most important features of a street railway is its track, and this importance may be brought out more emphatically by regarding the matter from different points of view. A good track is necessary to the smooth and economical operation of cars; it is of importance as bearing on the comfort of the passengers, and the track in its relation to the roadbed and to the thoroughfare through which it runs must be considered from its effect on the convenience of foot passengers and the durability of vehicles using the road.

Of the roadbed it may suffice to say that it is good practice to have a good ballast—for instance, clean, broken stone and sharp, clean gravel or furnace slag—at least a foot deep under the ties, with the space between the ties filled up evenly to the top, with proper provision for drainage connection with the sewers. In exposed track coarse, large stones placed edgewise at the bottom of the ballast are common, in order to provide for draining or sewerage; filling in the interspaces with the gravel or other ballast, thoroughly rolled or tamped down; and upon this bed are placed the ties which carry the rails. It has sometimes been the practice to set the rails or track construction upon a bed of concrete, or upon long concrete beams or stringers under the rails. In Buffalo the concrete bed has been laid entirely across the track, while in Kansas City, St. Louis, Philadelphia, and other cities the stringer construction is used.

The difficulty which has to be considered in connection with the use of concrete for this purpose has been that of track renewal, since, where the rail lies in concrete or where there are steel ties or cross girders thus embedded, the entire concrete portion must be renewed when the rails wear out and new rails are substituted. Some of the most extensive construction within the last few years in Chicago and New York city has been with wooden ties on a broken stone ballast. Thus it might almost be said that as a general thing recent work has developed the somewhat anomalous condition of using the more substantial concrete construction on the smaller roads where traffic is not heavy, and the lighter, more elastic wooden construction on roads with dense and ponderous traffic.

In this connection it may be interesting to note the practice of the Rochester Railway Company, Rochester, N. Y., as reported by the chief engineer, Mr. Le Grand Brown. In addition to track constructed by the ordinary method this company laid considerable concrete beam and steel tie construction. For ties the company used old 4½-inch girder rails cut into 1½-foot lengths, which were inverted and fastened with bolts and clips to the main rail. These steel ties were bedded in concrete, and under the rails were placed concrete beams 12 inches in depth and 14 inches in width. Where the ties were located, a trench 4½ inches below the tie and about 12 inches in width was filled with concrete. The remainder of the pavement between and beside the rails

was a 6-inch concrete base, while under the whole was a 4-inch layer of stone chips. Drain tile was laid parallel with the track and connected with the sewers. The pavement was laid upon a cushion of sand 1 inch in depth; and where the street pavement was of brick or asphalt, the concrete was carried slightly above the base of the rail. From 1897 onward this construction was carried out with 6, 7, and 9 inch rails in asphalt, brick, and Medina stone pavements. The track was raised and blocked to grade and line before concreting, little trouble being experienced in keeping it in place during the work, and care was taken to have the concrete well tamped under the base of the rails and around the ties.

With regard to the rail itself there is considerable difference in the practice of street railway companies, to which allusion will be made later. So far as known the first street rail laid was that on Fourth avenue in New York city. This was of the flat type, being nothing more than a single bar of iron with a groove formed in the upper surface, into which fitted the flange of the revolving wheel. This type of rail, with a weight ranging from 30 to 80 pounds per yard, although modified in many respects, was adhered to for a long time. Such a rail was more particularly adapted to light traffic, but even then was found to need vertical stiffening and longitudinal support. In America a small lip or flange was added to the underside to prevent the rail from slipping off the stringer, while in England a second flange was added, and the web was increased in depth. This feature reached such a development in some cases that the rails had a total depth of 2⅝ inches; the longitudinal stringers were abandoned, the rail being supported on cast iron chairs placed at intervals of 3 feet. As most of these rails, however, were used with wooden stringers, fastenings were used, consisting usually of spikes, staples, or lag screws passing through the rails. The rails were joined at the ends by rail joints, which were at first plain flat bars of iron, 3 or 4 inches wide and 8 or 10 inches long, let into the stringers and giving but a weak support to the loose rail ends. The next step from this flat or tram rail was to the T or Vignole rail, identical in most respects with the rail now used exclusively on the steam railways of the United States.

As will be noted from the returns in this report, the T rail has found extensive use among the street and interurban railways, though it is obvious that the conditions on street railways differ materially from those on steam railways. The main considerations which have led to its adoption or use, as compared with the girder rails, are that it is without the tram and groove of girder rails; it does not invite street traffic; it is generally easier to lay; it is cheaper, the price per ton being less than for the girder rails; and, finally, owing to its symmetrical section, a lighter rail can be used under similar conditions than would be the case if the girder type was resorted to. These remarks apply more particularly to roads in cities and their suburbs, since on the interurban railroads, which will be discussed separately, the T rail, with an average weight of 70 pounds, is almost universally used.

*Track construction on selected railways.*—Perhaps the best way to summarize present methods of track construction in standard American practice, as embodied in this report, will be to consider the practice prevailing in some of the leading cities and street railway systems of the country.

The United Railways and Electric Company of Baltimore uses for construction in paved streets 9-inch grooved rails, laid on Georgia pine ties, 6 inches by 8 inches by 8 feet, spaced 2 feet between centers, the ties being tamped up with 3 inches of gravel and no other ballast or concrete being used. The standard distance between track centers is 10 feet, although this is reduced when necessary in narrow streets. The rails are in 60-foot lengths, and are laid with broken or alternating joints. No tie plates are used, but tie rods are placed every 6 feet. Angle bar joints have been used recently, which on girder and grooved rails are 22 inches long, with 8 bolts, and all are between ties. The company also has some exposed 60-pound T rail, spiked to hewn chestnut ties 6 inches thick, with a face of from 6 to 12 inches, 8 feet long, placed 2 feet between centers. The ballast, 4 inches deep, is filled in between the ties to the base of the rail, sloping off to the roadbed 18 inches outside of the ends of the ties. The rails are 30 feet long and are laid with broken joints and no tie plates. The standard bond to secure electrical continuity between the abutting sections of rail is a tinned No. 0 copper bond wire, fastened to the rail with channel pins, though some of the heavy bonding is done with No. 0000 wire, while the standard bonding on exposed T rail on suburban lines is No. 0 tinned copper wire, fastened with channel pins.

The rail used in paved streets by the Boston Elevated Railway Company is in the nature of a compromise between a girder and a grooved rail. It has a groove with a lip one-half inch lower than the head of the rail, and is of a form which will not retain dirt, but offers considerable inducement to vehicles. For track construction where the entire street is laid on a concrete base, the ties, which are 6 inches by 8 inches by 6½ feet, are bedded for their entire length in concrete, which is carried down to the bottom of the ties and thoroughly tamped under the base of the rail. Where the pavement is not laid on concrete, the ties are bedded and tamped in gravel, which is brought up to the top of the ties, granite blocks being used for paving between the rails. On reservations, and where tracks are filled in with loam within 8 inches of the top of the rail, the ties are placed 2 feet 6 inches between centers.

Tie plates are omitted where the paving is brick or asphalt on a concrete base; but where the paving is granite, a cast iron tie plate about 1½ inches in thick-

ness is used, so that the height to the top of the rail is about 10 inches. The track construction is securely bonded to the rest of the street by the fact that the tie is bedded in the concrete. The joints are angle bar, with 12 bolts. The form of construction used in outlying streets, where a reservation has been made alongside the roadway so that there is no paving, is to lay a 7-inch T rail mounted on a 1-inch tie plate. The object of so deep a T rail is to secure 8 inches of loam over the ties for raising grass. Most of the recent bonding has been with protected rail bonds.

In Buffalo the company lays a 94-pound girder rail in paved streets, with a rather narrow groove, whose lip is five-eighths of an inch below the head of the rail. Two forms of track construction are employed, both of which depend mainly on concrete to support the rails. Where granite block paving is permitted for the full width of double track, the track is supported on a solid bed of concrete extending about 8 inches below the base of the rail, and is held to gauge and partially supported by the ties placed every 5 feet. Every alternate tie is of metal, the others being of wood. In places where asphalt paving is laid in the "devil strip" the concrete beam form of construction is employed. A wedge-shaped beam of concrete, 18 inches wide at the top and 8 inches deep, is laid under each rail, ties are placed every 5 feet, and concrete is tamped under every other tie at the time the concrete stringers are laid. The remaining ties support the track during construction while the concrete is being laid, and are laid on tamped stone, the paving between the rails being supported in this case simply on a sand foundation, except where it is above the ties. For suburban or outlying streets a 9-inch girder rail has been extensively employed for paved streets, but in macadam and dirt roads a 6-inch T rail, weighing 72 pounds per yard, is used, and if the track is exposed A. S. C. E. standard T rail is laid. The spacing of ties, which are white oak 6 inches by 9 inches by 8 feet, on suburban work is 2 feet between centers, and they are laid on broken stone ballast 8 inches deep. There are no tie plates, but rail braces are used on the outside of each rail and on curves.

Bonding is unnecessary on the electrically welded track used in Buffalo, which has over 100 miles of such track, as the conductivity of the joint is high and the percentage of breakages is low. On suburban work, rail bonds of the protected type applied with a screw compressor are used. As the introduction of a successful electrically welded track practically assures to a rail a length of life limited only by the wear of the head, some calculations have been made at Buffalo as to the probable wear of rails. On some track which ordinarily has cars on two-minute headway but which, during the Pan-American Exposition had cars on a thirty-second headway, the wear was found to be one-eighth inch in four years. The welding process, as carried on at Buffalo, begun in 1899, was notable as being the first application on a large scale of a successful method of welding rail joints electrically. The joint plates are welded to the web of the rail by means of bosses on the plates, which limit the area of the welding to the area of the bosses, and so insure a high temperature at the point of welding, one boss being directly at the joint between the rails, another at each end of the joint plate. The center bosses are welded first and those at the ends afterward. In the welding five work cars are employed. One of these is the welding car proper, which carries the welding clamps and the welding transformers. The second car carries a rotary converter, which receives direct current from the trolley wires and supplies alternating current to the welding transformer. The third car has a motor driven booster for raising the trolley voltage whenever the drop is so great that there is danger that the weld may not be successful. The fourth is a sand blast car, which cleans the rails before welding. The fifth carries a motor with emery wheels for grinding off any inequalities in the joint after it is completed. The number of breakages in the electrically welded track in Buffalo has been a very small fraction of 1 per cent.

The Chicago City Railway Company on the last track that it laid employed a 9-inch girder rail weighing 95 pounds to the yard, with wide tread for vehicle wheels, laid on white oak ties 6 inches by 6 inches by 8 feet, resting on sand, the track being held to gauge by malleable cast-iron tie plates with braces. No tie-rods were used, and the joints were cast welded. As to bonding, a good cast welded joint was used, and a copper supplementary wire was also run, as required by a city ordinance. It has been approximately estimated that a piece of girder rail track of this company was worn out after the passage of 3,000,000 cars; that is, the head was so worn that the car wheel flanges touched the tread of the rail. The wheel flanges used on this road are unusually shallow, being but five-eighths of an inch.

The rail now used by the Cleveland Electric Railway Company is similar to that used in Boston, except in streets like the boulevards, where the tracks run along grass plats. The track is laid on ties that are placed 2 feet between centers except that three are placed under each joint, these being staggered. Three inches of concrete is placed under the ties. Two kinds of joints have been used—the cast welded and the twelve bolt 36-inch angle bar. On a boulevard line recently constructed 80-pound A. S. C. E. standard rails in 30-foot lengths were used, the bonds used being single or double No. 0000 protected leaf bonds, 10 or 12 inches long, placed under the fish plates. Some 90-pound girder rails which have cast welded joints have been used nine years under a three-minute service.

The Denver City Tramway Company was one of the first to employ successfully the T rail in paved streets

where the traffic is heavy, and was the first to use what is commonly known as the Shanghai or high T rail. Its standard rail for "downtown" service is a 72-pound 6-inch rail, in 60 or 62 foot lengths, laid on Texas heart pine ties, 6 inches by 8 inches by 6 feet, 21 inches from center to center, in gravel ballast, which surrounds the ties and extends 8 inches below them, except in paved streets, where concrete is used between the ties. During the last four or five years the plan has been adopted of treating all rails with one or more coats of asphaltic paint, which has retarded corrosion and electrolysis, as the local soil is impregnated with alkali and mineral salts. For outlying unpaved streets, standard A. S. C. E. 65-pound T rail, in 60-foot lengths, is used. The rails are butted tightly together, and are always laid in cool weather, since they last longer when little longitudinal expansion is allowed. As to the life of ties, it is reported that in Denver, good Texas heart pine ties last from seven to twelve years; white oak ties have been in use for fifteen years and are still good; red and black oak ties are good for from six to eight years; and native pine and spruce will last from four to seven years.

The Detroit United Railway Company lays narrow grooved rails in paved streets, the last laid being 90-pound rails. Some of the first experiments in the United States with tracks supported by concrete stringers instead of ties were made in Detroit. The first construction of this kind was laid on concrete stringers only 6 inches thick, but as these were not strong enough to support the rail, the present construction uses concrete stringers 12 inches thick by 18 inches wide. The concrete stringer is brought up around the web of the rail high enough to permit brick paving to be laid with only a thin cushion between the paving bricks and the concrete. The upper part of the stringer is continuous with the concrete foundation of the asphalt or brick paving, and no trouble is now experienced from lack of sufficient support. For holding the track to gauge, a wooden tie is now placed every 30 inches, whereas formerly a metal tie was placed every 10 feet. The present construction, therefore, with its closely spaced ties, is regarded as a partial abandonment of the plan of depending entirely on concrete stringers for track construction.

The Indianapolis Traction and Terminal Company has two standards of track construction in paved streets, one employing 93-pound girder rails for streets where only city cars will pass, the other a special 91-pound rail, which is a high T rail with a wide head, designed to be easily paved to and yet permit the passage of interurban cars with deep wheel flanges, of which there are now a large number entering Indianapolis over the city tracks. The standard rail for this service is 7 inches high, and has a head 2¾ inches wide to reduce the amount of overhang of the wide tread interurban car wheels. For outlying unpaved streets 70-pound A. S. C. E. standard 5-foot rail is laid. The standard tie is 6 inches by 8 inches by 7 feet white oak, laid 2 feet 2 inches between centers and ballasted with gravel concrete, which extends 6 inches under the tie, surrounds it, and is brought to within 4½ inches of the top of the rail. Some track has also been laid on ties spaced 10 feet between centers, with a concrete beam, 20 inches wide and 9 inches deep, under the rail, and extending to within 5½ inches of the top of the rail. The standard bonds are the protected, 10 inches long, placed under the fish plates, and No. 0000, 28-inch wire cable bond, placed over the fish plates. The bonds are applied with a screw compressor. The track is cross bonded every 500 feet between the rails of one track, while at every 1,000 feet there is a cross bond connecting the four rails of the double track.

The Milwaukee Electric Railway and Light Company succeeded some time ago in securing the approval by the city authorities of T rail construction for paved streets. A special new design of T rail, which is 7 inches high, with a head no less than 3 inches in width, has been adopted as the standard, so that, in the future, interurban cars using the city tracks may be equipped with wheels having treads and flanges more nearly approaching the standard steam railroad wheel tread. With a rail having the head 3 inches wide, a car wheel with a tread 3½ inches wide could be used without having the wheel seriously overhanging the rail and bearing on the pavement. In asphalt or brick pavement, track is laid on ties 6 inches by 8 inches by 6½ feet, placed every 2 feet with 6 inches of concrete tamped under each. As this rail has a very broad base, tie rods, which are liable to cause a weak spot in the paving, are not needed. The joints, rectangular in form, are cast welded. In asphalt streets, granite toothing blocks are laid alongside of each rail, for while the city pays for the original laying of the pavement, the company pays for the maintenance of the pavement between its tracks and 12 inches outside its tracks. Granite toothing blocks extend out 12 inches, or to the limit of the distance that the company must maintain paving. On unpaved suburban roads 75-pound A. S. C. E. standard T rail is laid.

The Twin City Rapid Transit Company, of Minneapolis and St. Paul, was one of the first to lay a T rail in streets paved with asphalt, where girder rail had been the rule before. The rail used is 8-inch T, weighing 79 pounds to the yard. The base of the rail rests directly on a concrete beam 22 to 24 inches wide and 12 inches thick under the rail. Around and above the base of the rail is placed 3 inches of natural cement if the paving is of brick, and less if the paving is of granite. A cast welded joint of somewhat unusual shape, 16 inches long and weighing 190 pounds, extends out from the head of the rail so as to make a substitute for paving at that point. A flange way on the inner side of the joint gives the effect of a grooved rail at the joint. The object is to facilitate paving around the

joint and to provide against a weak point in the paving. The rails are in 60-foot lengths. The spaces between and around the paving blocks are filled with Portland cement grout, and fourteen days are allowed for the concrete to set thoroughly before any traffic is permitted. In less substantially paved streets, ties 6 inches by 8 inches by 8 feet, spaced 2 feet between centers, are used. A 6-inch concrete base of natural cement is placed between the ties and around their ends, and on this a sand cushion is spread. The brick or stone paving is set and grouted with Portland cement. For suburban construction a 5-inch 80-pound A. S. C. E. standard T rail is used, with ties 6 inches by 8 inches by 8 feet, spaced 2½ feet between centers.

The Philadelphia Rapid Transit Company uses for its standard track construction in streets having heavy traffic a grooved rail which weighs no less than 137 pounds to the yard, but where the traffic is lighter a section weighing 93 pounds is found sufficient. The latter style is also in use for suburban service where the streets are paved, while for unpaved suburban streets A. S. C. E. standard 90-pound T rail is used. In paved streets track is now being laid on concrete stringer construction, with chairs spaced 5 feet apart and a steel tie used in connection at every second chair, or every 10 feet, provision being made on these chairs for the adjustment of the gauge. A concrete stringer 17 inches wide extends 15 inches under the base of the rail. The foundation of the paving between the tracks is a bed of concrete 6 inches thick. All rails are laid with broken joints. A zinc joint used by the company consists of rolled steel joint plates surrounding the rail web and base, between which and the rail a filling of zinc is poured. Track construction hitherto has been laid on ties 5 inches by 9 inches by 8 feet, spaced 2 feet between centers. Where zinc joints are used no bonds are necessary, but on other track a protected form of bond, about No. 0000 wire, is used.

The Pittsburg Railways Company uses a 90-pound girder rail, in 60-foot lengths, laid on ties, resting on a foundation of broken stone. This foundation is in two layers, the upper layer being in 12-inch and the lower layer in 3-inch cubes, and extends to a depth of 21 inches below the top of the rail. Ties are 6 inches by 8 inches by 8 feet. Concrete is used around the rails to fill in the space between the head and base, the rails being laid directly on the ties and tie rods used. Cast welded rail joints are now being laid, the ties spaced 2 feet between centers. For suburban service 80-pound T rail and 78-pound girder section have been used.

The standard rail of the United Railroads of San Francisco for basalt block pavement is a 109-pound 9-inch girder, with ties placed 4 feet between centers. For streets paved with bitumen on a concrete foundation a 7-inch girder rail weighing 100 pounds to the yard is used, though for suburban service a 70-pound rail is the standard. The track is laid on ties 6 inches by 8 inches by 8 feet, with 3 inches of ballast under the ties except where concrete is used, when 4 inches of ballast is required.

The St. Louis Transit Company uses a concrete beam under each rail, with a concrete stringer 8 by 18 inches. To hold the track to gauge, a tie rod is placed every 6 feet, clamped to the base of the rails to prevent all tilting. The foundation of the pavement, the bottom of which is flush with the base of the rail, is a bed of concrete 6 inches thick, on top of which the asphalt is placed. The standard rail for city use is a 9-inch grooved rail, either 100 or 98½ pound section, while for suburban service the company uses a 95-pound 9-inch girder rail, and in dirt streets ties are laid to support the track.

*Bonding.*—It will have been noticed that frequent reference has been made to the subject of "bonds," which constitute so important a part of the system and circuit structure in electric railway work that it would be improper to pass them over without some explanatory comment. It is well understood that the current delivered to a trolley system reaches the car motor by means of feeder and contact wires, and that the circuit back to the power house is completed through the wheels and the track itself. If there were no such circuit completion, current would not flow, and it is therefore an essential and fundamental condition that both the feeding circuit and the return circuit should be maintained intact at all times with the least possible resistance to the flow of the current and also with the least opportunity for the current to leak away. The danger of leakage is particularly great, since the rails generally lie in earth, liable at all times to be more or less damp, and being adjacent to great masses of metal in the shape of gas pipes or water pipes, etc., which would furnish a better path than the rails for the current. Such pipes are liable to be attacked by a disease known as "electrolysis," which means, in this case, the corrosion or eating away of the iron or lead by the current.

It will be seen that with the traction rails broken at joints every 30 or 60 feet, some auxiliary device is necessary in order to make them continuous as a circuit. As even the most exact butting or overlapping of joints was found to develop abnormal electrical resistance, this condition was dealt with in the early stages of the art, and the problem was attacked in various ways. At the time of the street railway census of 1890 one method in vogue was to use the rails of the track exclusively, riveting to the rails around each joint a No. 6 galvanized iron bond. Another method was that of laying an auxiliary copper wire of the same size as the overhead trolley wire down the center of the track, on top of the cross ties, and connecting it with a wire of small size riveted to the center of each rail. As to the first method, it was soon found that galvanized iron bonds disappeared under the exposure to action in the earth, and the rails were rebonded with copper bonds riveted to each rail.

It was then discovered that these bonds were too small and that there was considerable loss of potential power because they deteriorated and broke off, so that it was again necessary to go over the lines and rebond them with heavier material. In the same way, owing to improvements in the method of bonding at the joints and the rapid adoption of heavier rails giving more conductivity in the return circuit, it was found unnecessary to incur the initial expense of auxiliary copper ground wire, and so the use of this was also given up. From that time on there has been a remarkable improvement in the matter of bonding the tracks, and a large variety of bonds have been put into service, usually of solid or stranded copper, but including some of a plastic nature. Among those favorably known and largely in use is the protected type, in which the copper bond, owing to its liability to be stolen, particularly on suburban roads, is protected or concealed and goes in the space back of the fish plate, against the web of the rail. The rails themselves, if their connection was unbroken, could, of course, carry the current of the return circuit without trouble, but as there are from 176 to 352 joints in a mile of track, at any one of which the circuit is liable to break, it is evident that bonds can hardly be used too liberally, while there is even warrant for supplementing the return system with return feeders, which may be carried either underground or on the poles supporting the overhead wires. Some railways have supplemented their track return by inserting into the return circuit a quantity of their old rails which have been scrapped and which can thus be utilized again to advantage. By methods of this kind the street railway companies have not only done much to lessen the annoying disturbance of adjacent telephone circuits experienced in the early days of the trolley, but have obviated quite successfully the electrolytic action on iron and lead pipes in the ground, caused by the current escaping from inadequate return circuits. No small amount of litigation and some very extensive and costly experiments have attended this work and development. The extent to which current can leak from a track may be inferred from the estimate that in ordinary double track the surface exposed for leakage is sometimes as great as 50,000 square feet per mile of route.

Despite the many bonding devices, a good many engineers give their preference to a track which is practically jointless. To secure this result two principal methods have been in use. One of them is electrical, and consists in welding the rail joints and plates together in some such method as that described on page 175 in connection with the track of the Buffalo street railway system. Another method often used consists in casting a sleeve of iron around the ends of the rail joints at the side and bottom. The sleeve is made of cast iron, of special chemical composition, which has been "run" at a much higher heat than is employed in making ordinary castings. The metal is poured in from one side and comes in contact with the web of the rail at its greatest heat. It brings the thin part of the rail to a white heat and tremendous pressure is exerted on the molten cast iron, which is squeezed into the interstices of the steel rail, becoming such an integral part of it that if a joint of this kind is sawn through it is impossible to say where the web of the rail ends and the cast joint begins. These joints are usually about 14 inches long and weigh from 70 to 140 pounds per joint, depending upon the size and weight of the rail that is welded. A very good mechanical joint is thus effected, and the electrical continuity of the circuit is high. A third method which has recently come into vogue consists in using a welding mixture known as "thermit," which is made of powdered aluminum and iron oxide. The combination of aluminum with oxygen evolves an immense amount of heat, and this reaction has recently been brought under control. A welding portion of the mixture is poured into a small crucible at the joint with a thimbleful of ignition mixture added, and the whole is ignited. The reaction is immediate, and the molten thermit flowing into the mold around the rail makes the joint.

It may be here noted relative to the details given of track bonding, that according to the statistics in Table 94, 1,642.68 miles have been constructed with cast welded joints. This method constituted only a small proportion of the entire mileage, leaving practically all the rest of the track rendered conducting and continuous by means of electrically welded joints or by the very generally used copper rail bonds. The cast welded track is found in a number of states, but particularly in California, with 110.62 miles; Illinois, with 292.68 miles; Minnesota, with 89.57 miles; Missouri, with 376.07 miles, practically all in St. Louis; New York, with 222.82 miles, virtually all in Buffalo and Greater New York; Ohio, with 129.85 miles; and Wisconsin, with 141.25 miles, all of which is in Milwaukee. It will be gathered from these figures, therefore, that cast welding is still limited to a few of the larger cities and urban systems.

## II.

### RAILS AND CONDUITS.

In Table 94 detailed statistics are given regarding the weight of rails per yard, the style of rail, and the method of rendering the track a perfect return circuit by means of cast welded joints. Considerable discussion of rail will be noted in the preceding section of text. With regard to the style of rail employed there is no uniform practice. Of the 817 operating companies, 367 used T rails exclusively and 390 reported the use of T rails in connection with girder, groove, or full groove rails. The range in the weight of the rail as shown by the returns is also quite remarkable—from the 15-pound T rail of the little Paso Robles, Cal., animal power system to the 135-pound girder rail used on the Union

Traction system in Philadelphia. A number of roads have rails of very heavy section, as, for example, 128-pound on the road of the United Railways and Electric Company of Baltimore; 120-pound on several roads in Louisiana; and 113-pound, 110-pound, and 109-pound on various roads. As might be expected, the T rail is a common form in interurban work associated also with lighter weights of 60-pound or 70-pound, but it is also to be found in urban limits. In Vermont all the rail reported is of T type and none of it exceeds 60 pounds in weight. In Texas also nearly all the companies report the use of the T rail, although in Houston, girder rail up to 96 pounds per yard is in use. A good deal of T rail of light weight is also reported from California, Colorado, Connecticut, Georgia, Illinois, Indiana, Iowa, Kentucky, and Wisconsin. Girder rail, on the other hand, is reported very generally, as will be seen from the table, in Illinois, Maryland, Massachusetts, Missouri, New Jersey, New York, Ohio, Pennsylvania, and Virginia.

*Third-rail systems.*—The number of companies operating by the third-rail system were so few at the time of the report, that it was not deemed necessary to make a separate section of the schedule for this information. Eleven companies in five different states, with a total of 342.11 miles of track, reported this form of construction. There is no third-rail construction within city limits on the streets, but there is considerable of it on the elevated roads of New York, Chicago, Boston, and Brooklyn. The Northwestern Elevated, South Side Elevated, Metropolitan West Side Elevated, and Lake Street Elevated, all in Chicago, Ill., report the third rail, with a total of 107.96 miles of third-rail track. In New York state, the Manhattan Railway Company, at the time of the report, was operating 40 miles in New York city by the third-rail system, but since that time and during the compilation of the report the whole of its 117 miles has been converted to third rail. The Brooklyn Rapid Transit Company reported 50.40 miles of track operated by third rail. The New York, New Haven and Hartford Railroad reported not less than 25.43 miles in Massachusetts, this being all on the surface and constituting an important electrical adjunct to the steam locomotive service of the company in certain limited districts. The Boston Elevated reported 16.02 miles of track with third rail. Besides this use of the third rail within city limits the report shows, even in 1902, a considerable amount of third rail on the surface for interurban purposes, similar to that quoted in Massachusetts for the New York, New Haven and Hartford system, which had 25.89 miles of this type of track in Connecticut on its Berlin section. At the time of the report California had no third-rail interurban road, although some was then under construction and has since gone into operation. In Michigan the Grand Rapids, Grand Haven and Muskegon road reported 36.63 miles of third rail. In New York state the Albany and Hudson Railway and Power Company reported 39.78 miles between the two cities named. This road runs through several communities of good size, where the third rail is safeguarded and has not been found any hindrance to general movement of vehicles or pedestrians. The trolley is used, however, in the terminal cities.

*Conduit systems.*—In connection with the treatment of roadbed and track must be considered the subject of conduit railways, since the modern conduit in electric systems, as in the preceding cable systems, constitutes practically a part of the structure. The earlier cable work in the United States was put in with a deep conduit or tube between the two rails. The conduit at San Francisco was 32 inches in depth, and that of the Chicago City Railway 36 inches. Such construction was expensive, not only on account of the excavation required, but because of the interference of the conduit with other subsurface structures. In constructing the conduit in natural soil it was necessary either to cut a formidable trench with pick and shovel or else to blast out the bed, and, on the other hand, if the line were built upon made ground, concrete foundation piers and sometimes even piles were necessary. In cable railways a grip extending down between two slot rails seizes a traveling cable, and the car is thus drawn forward, although it has no power of going backward. Many objections were urged against the system on the score that the slot caught the narrow tired wheels of passing vehicles, and that the conduit space constituted an additional gutter which it was difficult to cleanse; but the conduits were gradually made shallower, methods of removing mud and water were perfected, and the cable system had reached a high stage of development when electric traction became commercially feasible.

Having in mind the objections urged against the slot and conduit, much ingenuity was bestowed by electrical inventors on the development of electrical methods which would dispense with any such openings, but which would still bring the current to the car by means of conductors buried in the ground, in order to avoid the erection of overhead wires. These closed conduit systems have depended broadly either upon a third-rail conductor, or upon exposed knobs or contact buttons in the street bed, with which the moving car could make contact by means of a long "skate" or shoe. The section of conductor immediately adjacent to the car, electrified at the time the car passes it, becomes dead as soon as the car passes on to the next block or succession of contact devices. The connections are made by section switches, closed and opened by magnets carried on the car; auxiliary circuits, closed by the car itself as it proceeds; mechanically, or in a variety of other ways. This contact material has consisted sometimes merely of iron filings within the road contact plate. Sometimes the contact devices have consisted of plungers making contact through mercury cups at the switch box. The

only contact system of this general character now in operation in the United States is that which has been installed by the Westinghouse Electrical Manufacturing Company in the United States Navy proving grounds at Indian Head, Va., on the Potomac. This line is about 3 miles in length, is operated in part by an overhead trolley; but, as the track crosses the firing line, where the overhead wires are liable to damage by projectiles, some other system was necessary, and the contact system has been adopted. Each car is operated with two steel contact shoes, and these shoes project downward from the bottom of the car by springs, energized by storage batteries on the car, make contact with successive pairs of pins set along the track. The switch boxes and contact pins are made as a complete unit, and the contact pins, where the boxes are installed upon the track, stand up 1½ inches above the running rail. As the car runs along the track the shoes "cut in" and "cut out" the pins so that only the portion of track over which the car stands is alive.

On the whole, therefore, it will be understood that surface contact street railway methods with closed conduits are not in vogue, and that where the overhead system is not allowed the open conduit method is the only one left permitting the use of electricity in large cities. The one other plan of bringing the current to the street car is that which is known as the third rail; but the inapplicability of this needs no discussion, the third rail being available only upon underground roads, elevated roads, and cross country lines with a more or less uninterrupted right of way. According to the returns presented in this report, of the 21,914.01 miles of single track operated by electric power, 97.2 per cent obtains current by means of an overhead wire. Deducting the mileage operated by third-rail and storage-battery systems, this leaves 1.2 per cent for the open conduit. But it is a superficial indication of the relative importance of the conduit, as it is only to be found in a few cities of dense population and extremely heavy traffic, such as New York and Washington. In both these cities the open conduit electric method has not only been applied of late years to lines of thoroughfare previously unoccupied, but has replaced entirely the cable conduit in leading streets, the most conspicuous example being Broadway, New York city.

One of the serious limitations of the open conduit method is its heavy cost of construction as compared with the overhead method. Detailed figures presented by Mr. A. N. Connett as to the Metropolitan Railway Company, of Washington, D. C., give a total construction cost of not less than $50,000 per mile of track, and the data given by Mr. W. C. Gotshall as to the total cost per mile of single track on the Second Avenue Railway, of New York city, showed a cost of about $58,000. Even this is far from the extreme cost reached on some lines. The real cost depends in very large part upon the amount of underground piping to be disturbed.

As there is a strong family likeness to-day among the various open conduit systems, a description of the Washington system may be taken as giving a typical view of intelligent work, although this system is not the latest in construction. The conduit, formed entirely of Portland cement concrete and resting on a concrete paved base, extends the entire width of the roadbed and 2 feet outside the outer rails. The conduit yokes go down 31 inches from the grade or surface, and the inside depth of the tube is 25 inches. At intervals of 13.5 feet manholes are provided for access to the underground work, and every 400 feet there are hatches by which the conductor rails, 27 feet long, can be inserted or removed. The conductor rails, along which the contact plow makes rubbing contact as it travels, are carried on porcelain insulators 4 inches in diameter and 7.5 inches deep over all, which are held by an iron cap and which support a bolt to which the conductor rail parts are attached like the lower horizontal member of the letter L. The conductor rails are of mild steel weighing 23.5 pounds to the yard—a weight which gives abundant conductivity for the current required to operate all the cars on the system at any one time—and are bonded together with copper bonds. It will, of course, be understood that the traction rails on the surface of the street are no part whatever of the electric conducting system, as they would be in an overhead trolley road. The slot rail of the track, weighing 67 pounds to the yard, is the same as that used on cable roads, except that a little more care is taken to provide for drainage of water from the edge of the slot. Careful provision for drainage is made within the conduit through manholes connecting with the sewer pipes about every 400 feet.

It is not to be understood that this system is general, as each conduit road has peculiarities of its own, and the same road will show modifications in conduit structure on different sections. The Lenox avenue conduit structure in New York city, which is one of the best known of the pioneer systems, began by carrying its insulators and contact rails on pedestals standing up from the base of the conduit, but these were early abandoned, and on the road as now operated the insulators and contact carriers are inverted and supported from the conduit roof, somewhat as in Washington. One of the governing conditions has been the retaining or replacing of the old cable conduit, the new electric conduit methods being modified in the former case, as upon the Third avenue line in New York city. Upon the newer sections of the Third avenue line the conduit yokes were placed 5 feet apart, and built up of three pieces riveted together, namely, a steel I-beam weighing 105 pounds, and two cast-iron side pieces weighing 122 pounds each. These yokes are planted in a 4-inch bed of concrete, and the conduit between the yokes is of solid concrete. The slot rail, weighing 66 pounds to the yard, is laid in 30-foot lengths, while the track rail of

the girder type, 9 inches high and weighing 107 pounds to the yard, is laid in 60-foot lengths. The steel conductor rail, weighing 21 pounds to the yard, is carried on inverted insulators hung from inside the slot rails.

This construction, however, is not to be regarded as standard—a word which would apply better to the practice adopted in 1897 in New York, and which has been followed in the construction of the conduit system at Brussels, London, and other foreign cities, although in several of the European cities conduit is laid under one of the rails instead of between them. Another point of difference relates to the plow rather than the conduit; thus the contact shoes used in Brussels, instead of being pressed outward horizontally, as in the New York and Washington plows, are swung out vertically in the arc of a circle, the arc being 135 degrees. Another variation in this detail occurs in Vienna and Budapest, where the plows are hinged from above and swung around in an arc of about 45 degrees. A further point of difference which is interesting to notice is that the rubbing surface of the contact device is on top of the contact rail instead of on the face or side, as in other conduit systems.

The old method was to build up the conduit from the bottom of the trench. The new method of conduit construction, as distinguished from the old, is to build downward from the slot and track, which are first aligned with the conduit yokes, the cement being then packed around a movable mold. A few words of description as to the present method, followed in New York and Europe, are given below.

A trench is first constructed of exactly the dimensions which will be taken by the completed conduit, so that the quantity of earth removed is a minimum. The yokes are placed about 5 feet apart in niches, which are carefully cut in the trench at exactly the points required. After this has been done, wooden timbers are placed across the trench to support the slot rails, at such a height that the slot rails, when placed on them, will rest on the yokes, and will be in their proper future positions. On these timbers are mounted cast-iron clamps, of just the right shape to fit and hold the base of the slot rails. The rails themselves are then set in these clamps, and joined at the top by means of a T-shaped clamp, which embraces the heads of the rails and fits into a mortise in the lower clamp. In this way the proper position of the rails is secured, and it is only necessary to align and level them by adjusting the position of the wooden timbers. In other words the track is aligned by means of the slot rails, which is the end desired, and the rest of the structure is made to conform to it. The yokes are next attached to the slot rails by means of four bolts for each yoke. The brace rods are then put in place connecting the yokes with the web of the slot rails. The only work now remaining to be done is to build up the conduit proper.

Exposed, as the conductors in an open conduit are, to all the vicissitudes of weather, it is natural to expect that they would be liable to frequent interruption on account of the burning out of sections by short circuiting, which easily happens when moisture is present. On the whole, however, the operation has proved extremely satisfactory, and the conduit and track conditions have been far less susceptible to trouble than was expected. In fact a more sensitive and weak part of the system has been the contact plow. It is not only subject to considerable wear, but may become jammed in the slot, especially if a car should happen to get into collision with other vehicles. The applicability of the method, as well as the practical verdict upon it, is to be found in the fact that not only has it superseded the cable in New York, but it has also replaced the storage battery, and is being installed on several of the branch lines where horses are still in use, so that ultimately the whole of the city below One hundred and thirty-fifth street will depend upon the open conduit for its surface street railway transportation.

## III.

### ELECTRIC LINE CONSTRUCTION.

The importance of overhead trolley construction for the operation of electric railways may be deduced from the fact that of the 21,901.53 miles of track operated by electric power embraced in this report, 21,290.09 miles received the current for the cars by means of overhead wires. From the details of electric line construction, shown in Table 94, it will be seen that of the total, 15,857.26 miles, 10,220.07 miles, or 64.5 per cent is span wire; 5,223.08 miles, or 32.9 per cent, side bracket; and 414.11 miles, or 2.6 per cent, center pole. It also appears from the returns that wooden poles have been used for 80.3 per cent of this mileage and steel or iron poles for 19.6 per cent. In addition to this, 15.92 miles of line have wires supported by elevated railway structures and by buildings or bridges. The same table shows for each railway the number of poles to the mile, the average being about 52, ranging from 40 up to 75, depending upon the local conditions and requirements. The extreme figures are 30 poles to the mile, reported for the Salem Electric Railway Company, of Salem, Ohio, and 85 reported by the Duluth-Superior Traction Company, of Duluth, Minnesota.

*Span wire construction.*—Table 94 shows that the span wire construction reported—10,220.07 miles, or very nearly half of the overhead trolley construction—was very largely in the cities. Thus in California, with a total of 339.82 miles, 98.66 miles was reported by the United Railroads of San Francisco; 55.82 by the Los Angeles Railway; and 66.43 by the Oakland Transit Consolidated Railway. These three companies constitute a very large proportion of those of the same character within the state. In Colorado, out of the 140.16 miles, 82.02 miles was reported by the Denver City

Tramway. The state of Illinois reported a total of 799.06 miles of span wire. Of this mileage nearly half was reported in the city of Chicago. In Indiana, out of 357.80 miles, 127.40 miles was reported by the Union Traction Company of Indiana, and 36.39 miles by the Indianapolis Street Railway. In Massachusetts, with a total of 712.85 miles, a group of three roads in and around Boston—the Old Colony, the Boston and Northern, and the Boston Elevated—reported 445.50 miles. In Ohio this style of construction appears to be generally distributed, but out of the 908.56 miles, 115.41 miles were reported by the Cincinnati Traction, 69.31 miles by the Cleveland Electric Railway, and 47.87 miles by the Cleveland City Railway. In Pennsylvania, with a total of 1,532.83 miles, the Union Traction Company, of Philadelphia, reported 308.86 miles, and the Pittsburg Railways Company, 232.09 miles. It will be gathered from the foregoing figures, therefore, that the span wire construction is to be credited with a larger track mileage than would appear on a superficial reading of the figures. In other words, there was a total mileage reported of overhead trolley construction of 21,290.09 miles, but there was only 5,223.08 of side bracket and 414.11 of center pole. These two items made a total of 5,637.19 miles, which would leave a total of 15,652.90 miles of overhead construction to be accounted for, whereas the mileage of span wire reported was, as already noted, only 10,220.07 miles. Allowing that all the center pole construction covered two tracks, and that part of the side bracket also had long brackets, enabling two tracks to be served, it would still appear that half of the span wire construction was employed to cover double tracks. This applies to the construction in many cities, as, for example, Chicago, Ill.; Indianapolis, Ind. (almost entirely); Minneapolis and St. Paul, Minn.; Omaha, Nebr.; Brooklyn, N. Y.; and Cincinnati, Ohio.

*Side bracket construction.*—The side bracket construction counts, of course, for every mile of track over which it extends, and in some cases, as has already been noted, covers the two tracks, the detailed statistics being, however, difficult to extract where all the methods of overhead construction were employed. Side bracket construction is obviously an adequate and satisfactory method for suburban and cross country lines where but one track has to be served, and hence, as might be expected, a large amount of this mileage, namely, 5,223.08 miles, is to be found in states and along roads where the single track is more prevalent. The state of Maine is notable for the large amount of side bracket construction which it contains. With a total of 328.55 miles of overhead construction, there was not less than 240.16 miles of the side bracket type. Massachusetts also had a very large proportion of side bracket construction, even in such crowded centers as Boston and vicinity. The Boston and Northern system reported 182.53 miles, and the Old Colony Street Railway 228.69 miles. Out of the 75 roads or systems reporting for the state, 16 reported only the side bracket form of construction. In New York state the side bracket form of construction was not so conspicuous, only 453.04 miles being reported, and of this 82.63 belonged in one system, that of the Hudson Valley Railway, while Rochester and its suburbs presented another large group of the same style. The Rochester and Sodus Bay Railway had no span wire, but 34.86 miles of side bracket and 4.44 of center pole. The state of Ohio, as might be expected, with its interurban groups, had a large amount of side bracket construction, namely, 936.35 miles, which was very widely distributed. As previously noted, Pennsylvania had proportionately little side bracket construction, although several of its roads were extensive suburban systems. The state of Vermont, in the New England group, is noteworthy for its large proportion of side bracket, as will be seen from the table.

*Center pole construction.*—The center pole line construction for the whole country, 414.11 miles, should normally represent exactly twice that amount of track served, since the invariable purpose of such construction is to serve two tracks with one line of poles, by running a line of poles down the middle of a wide thoroughfare between the two tracks. Very often this center pole is masked by shrubbery, and one of the earliest and best instances was the line put in at the beginning of the trolley régime by the Washington road running out to Eckington and the Soldiers' Home. This center pole construction is widely distributed throughout the country, as will be seen from an inspection of the table. Several states possessed 20 or 30 miles of such construction, while Maryland had 40.14 miles, and New York 32.41 miles—the latter being so widely distributed that only one road had more than 6 miles of it. It will be observed that few of the interurban systems report any considerable amount of this style of construction. The interurban system most conspicuous for its center pole construction was the Grand Rapids, Holland and Lake Michigan, which reported 24 miles. The Twin City Rapid Transit system of Minneapolis and St. Paul is conspicuous for reporting 60.50 miles of center pole construction, which represents 121 miles of single track, and would account for nearly one-half of the entire 251.02 miles of that system. In California the most notable instance was that of the Los Angeles Pacific Railway, an interurban system, which reported 20.65 miles of center pole, accounting for more than 40 miles out of the total of 87.48 miles of track.

*Line supports.*—Table 94 shows in detail, in terms of mileage, the statistics with regard to the use of steel or iron poles and wooden poles. It will be seen that 12,728.76 miles of track were reported as equipped with wooden poles and 3,112.58 miles with steel or iron poles, making a total of 15,841.34 miles, which apparently would represent the actual mileage of the streets and

other thoroughfares occupied by the overhead construction. This mileage, however, has no definite reference to the miles of track, as such, whether single or double, as a mile of overhead construction might obviously be inclusive of both conditions and methods. The metallic pole, although its use is quite widely distributed, is not found in some states. Illinois reported 264.35 miles; Massachusetts, 294.91 miles; New York, 485.28 miles; Ohio, 302.41 miles; and Pennsylvania, 540.20.

A study of the figures will show that the metal pole was used chiefly within city limits; thus, companies in Chicago, Ill., Detroit, Mich., Minneapolis and St. Paul, Minn., and Philadelphia and Pittsburg, Pa., reported nearly all of the metal poles shown for the states in which these cities are situated; and companies in St. Louis, Mo., Boston and Springfield, Mass., Cincinnati, Cleveland, and Columbus, Ohio, and New York city, N. Y., reported a large proportion of the metal poles of the states in which they are located. There is an aesthetic advantage in the use of metal poles, as compared with wooden poles, aside from their more sightly appearance, in that, on the average, fewer of them are required per mile of electrical construction. The number of metal poles per mile is usually from 40 to 50, though in some cases, as in certain places in Ohio, 60 or more poles per mile were reported.

With regard to the use of wooden poles, it may be noted that of the 12,728.76 miles equipped with such poles 1,724.64 miles, or 14 per cent, was reported for Massachusetts; 1,554.79 miles, or 12 per cent, was reported for Ohio; 1,452.19 miles, or 11 per cent, for Pennsylvania; and 1,047.20 miles, or 8 per cent, for New York state; these four states together, therefore, reported 45 per cent of the total for the country.

*Feeder construction.*—A large proportion of the feeder wire mileage was carried overhead and on the poles referred to above, and very little of it—2,411.07 miles out of 24,754.29 miles, barely 10 per cent—was underground. The use of the overhead method for feeder wire was so general that the exceptions alone deserve study, and these are presented in Table 94, which shows that the underground feeder wire mileage occupied 589.3 miles of street within city limits, in connection with some 27 of these railway systems, though these systems in some cases represent two or more cities. The largest amount of such underground feeder wire construction was found in three states, which together accounted for about 78 per cent of the whole, namely: Pennsylvania, with 204.8 miles of street and 1,685.8 miles of duct; New York state, with 145.8 miles of street and 3,317.1 miles of duct; and Wisconsin, with 110.8 miles of street and 674 miles of duct. In these three states the feeder conduit work was limited almost entirely to the three cities of New York, Philadelphia, and Milwaukee.

Further details of feeder construction are furnished in supplementary Table 2, which shows the statistics for the different kinds of conduit used. In this connection it may be stated that the cable most commonly used was copper strand, heavily insulated, and sheathed with lead, the copper conductor being further protected in some instances, as in New York, by special paper insulation. The largest proportion of feeder conduit was constructed of terra cotta and vitrified clay. The 336.6 miles of street occupied and 3,905.1 miles of duct, used by this kind of conduit, amounted to more than half of the whole conduit feeder mileage. Iron pipe conduit occupied 156 miles of street, with 1,981.4 miles of duct. Terra cotta and vitrified clay conduits were used exclusively in Wisconsin, while in New York and Pennsylvania iron pipe was also used, as well as a certain amount of wooden duct. New York reported the greater part of the 13.5 miles of street with concrete construction. As to wooden duct, out of 83.2 miles of street occupied by 565.1 miles of duct, 76.2 miles of street, and 542.5 miles of duct were reported from Philadelphia, Pennsylvania.

While it is urged by many who are interested in the aesthetic improvement of urban centers that the overhead network of a trolley road is ugly and an eyesore, it can not be denied that in this branch of the work a most marked and rapid improvement has been seen, both with respect to the appearance of the line and in regard to its stability. The early construction left much to be desired, and the materials used were altogether too light and cheap for the conditions imposed upon them, while a great many details now making for trimness and permanence had not been worked out. One of the greatest drawbacks was found in the fact that for some years it was considered necessary to put upon the poles, not only the small conductors with which the trolley wheel makes contact and the necessary supports, but also all the mains and feeders delivering current to the lines as a whole. In fact this practice still prevails to a considerable extent in regard to feeders, as may be inferred from the fact that of the 24,754.29 miles of feeder wire 22,343.22 miles, or 90.3 per cent, was overhead.

At the time of the report conduits for feeders were employed by only 27 companies, but the tendency to remove the heavy cables and conductors from the poles is becoming very marked, and in the next few years, especially within city limits, a very large proportion may be expected to be taken down and put out of sight. The fact that underground construction is still limited to a few cities is shown by the fact that Washington, Chicago, New York, Boston, Philadelphia and Milwaukee contained 6,136.3 miles of duct, or 93.7 per cent of the total in the United States.

*Overhead trolley.*—The construction of overhead systems has been greatly simplified since the time of the report on street railways for the census of 1890 by the general adoption of the single overhead trolley system, by means of which the track is used as a part

of the return circuit to the power house, one overhead wire bringing the current to the motor. The double overhead trolley, which was often used before 1890, was soon found to introduce a great many serious complications. Not only do the two wires necessitate additional overhead structure and wiring to support them, but the cars must carry two trolleys. When the car has to pass switches and frogs, changing the direction of the overhead contact, a vast amount of complication ensues. In short, the difficulties and objections have been such that in 1902 only 7 companies reported the use of the double overhead trolley system, the total mileage of track thus operated being only 234.15. Nearly all of this was reported from Cincinnati, and all of it would be gladly discontinued by the companies but for purely local convenience or for the requirements of old ordinances and franchises insisting upon the maintenance of this method.

The nature of pole line adopted for overhead construction depends a great deal upon the width of the thoroughfare, the extent to which the district is built up, the style and quality of surrounding buildings, and the restrictions imposed by the public authorities. As has already been noted, a very large proportion of the construction is of the "span" type, which consists in setting poles along the street at regular distances in pairs, exactly opposite to each other, and then spanning the roadbed by means of a span wire. This is repeated at each of the poles, and the service wire, with which the trolley wheel makes contact, is attached to the span wire and carried along underneath by insulators. The span wire is necessarily strong and, as a general thing, consists of galvanized iron and steel stranded wire, an ordinary size being five-sixteenths of an inch. If the street is unusually wide, the size of the wire across the roadway and the two tracks may run as high as three-eighths of an inch, while on the other hand, quarter-inch wire will be used for a single track span. A large number of detail parts are necessary to insure solid and substantial suspension, and to prevent the possibility of breakdown, which would not only inflict injury on persons and property, but interrupt the operation of the road.

To quote specific examples, at Indianapolis, Ind., the size of the span wire varies from three-eighths of an inch to five-eighths of an inch, according to the width of the street and the strain imposed, and the trolley wire held up is No. 00 round wire, a strain insulator being placed in the span wire next to each pole. In St. Louis in the latest construction of span wire a 7-strand double galvanized steel wire five-sixteenths of an inch thick is used. The trolley or service wires are insulated by a joint strain insulator at the pole and by a trolley wire hanger with wooden insulation, a bolt in which a cone shaped piece of wood furnishes the insulation. The ear for holding the trolley wire is 15 inches long and is clinched or hammered in order to hold up the wire, no solder being used. In Milwaukee, Wis., a notable change from the ordinary line work has been the abandonment of insulated trolley wire hangers, those employed being entirely of metal. Insulation is secured by strain insulators in the span wire itself, of which there are two in series between the pole and the trolley wire. The trolley wire hanger is of the usual appearance, except for the omission of the insulating bolt, and being purely mechanical in its function and not requiring insulating qualities, it can be made very substantial. Another feature of the Milwaukee construction is that known as "figure 8" trolley contact wire, the wire in cross section resembling that numeral, allowing the ear of the insulator to clip the upper part more firmly. In Philadelphia, Pa., the practice differs from that of both St. Louis, Mo., and Milwaukee, Wis., in the fact that a round top bell trolley wire insulator is used with soldered ears 15 inches long and weighing 14 pounds. The Twin City Rapid Transit Company of Minneapolis and St. Paul, Minn., uses a trolley wire hanger of its own manufacture, in which the insulation is secured by a structure of wood supported in the metal from the bracket or span wire, in each end of which the trolley wire clips are supported.

In addition to carrying the span wire, which in turn carries the contact conductor, the poles, as has already been noted, have to support feeder cables, which are necessarily of considerable weight, usually being of copper, though aluminum is sometimes used. Moreover, the feeder cables carrying large quantities of current require extra large and heavy insulators, for which glass or porcelain is generally used, though sometimes a compound of mica and shellac, rubber, or asbestos is used. The feeder cable runs parallel to the track, and is tapped at frequent intervals in order to supply current to the different sections of the trolley system. These taps are made from the top of the pole across the span and connected to the trolley wire at numerous points. Sometimes these feeder taps are used as a span wire.

Nor are these wires and circuits all that go to make up the web-like network of wires which are seen above a trolley track, and more particularly above a double track covered by the span wire system. At corners and curves a large number of auxiliary span wires and brace and guy wires have to be introduced, all adding to the apparent complication of the system. In many places, moreover, local ordinances still require that guard wires shall be used above the trolley network to prevent broken telephone, electric light, or other wires from falling across the trolley system. Where these are added the result is usually very disagreeable to the eye. Street railway managers are decidedly averse to this addition to the wire structure, claiming that the guard wires rarely serve a useful purpose, and are more often the cause than the cure of the evils they are designed to obviate. A feature of span wire con-

struction which is not uncommon in Europe, but which is hardly known in the United States, is that of carrying the wires across the street without poles, from building to building, attaching the span to rosettes of metal firmly embedded in the fronts of the houses. This method is frequently permitted by the authorities, and the entire absence of poles gives a much clearer vista to the thoroughfare along which the trolley system is in operation.

Next in importance to the span wire construction is that which is carried out by means of side brackets. The purpose of the side bracket or side arm construction is to decrease the cost of line construction as well as to lessen the number of poles along the street, it being feasible to extend the side arm from the pole to such a length as to carry the circuits for a double track system. The side arm projection from the pole is braced from below, and is also often supported from above, to insure rigidity. The methods of suspending the trolley service wires are much the same as with span suspension, the chief difference being, perhaps, in the insertion of insulating materials between the arm and the iron sleeve by which the insulator is carried.

Another variation in overhead construction is the use of the center pole, which is virtually a duplication of the side bracket pole, the arms being extended out on both sides of the pole, the pole being planted in the middle of the street or avenue, midway between the two tracks. With the center pole construction a greatly improved appearance of thoroughfares is often obtained. The center pole is also often utilized for lighting purposes, especially where the city ordinances require that a certain amount of lighting shall be furnished free by the trolley company in part return for its franchise; and some extremely pretty effects are often obtained, especially where the poles are of ornamental character. The center pole construction, however, is not favored, as it forms an obstruction to traffic, being in the center of the street.

Wooden poles constitute a very large proportion of the supports employed in overhead line construction. The greatest variety exists with regard to the nature of the woods used and the treatment adopted in preparing poles for use and in setting them. The wood favored depends very often upon the proximity to the forest where the poles are cut, but the kinds in most general use are chestnut, cedar, or Georgia hard pine. Chestnut poles are preferably of second growth, and are used up to a length of 45 feet. Cedar poles do not possess the elastic or tensile strength found in hard pine or chestnut, and are not favored in lengths over 45 to 50 feet on account of their liability to succumb to the strain of storms and the weight of conductors. In a general way the poles used are trim and straight, with a departure from the center line of not more than 4 or 5 per cent, and they are often trimmed and made hexagonal or octagonal in shape, as well as painted in some standard color adopted by the system.

On the suburban lines of the United Railways of San Francisco the standard type of pole is 30 feet long, 12 inches at the base, and 8 inches at the top, the material being redwood, which, of course, is hardly obtainable in other parts of the Union. On one of the systems in Brockton, Mass., most of the poles are of chestnut 30 feet in length, with 7-inch tops, set 5.5 feet in the ground, and carrying arms of Georgia pine, which are equipped with four locust pins to hold up the insulators and wires. On the Schenectady, N. Y., system, where the city overhead work is all span construction, 35 and 40 foot chestnut poles are used, set 100 feet apart. On the Ballston, N. Y., branch, the center-pole double-bracket construction is used, with 35-foot octagonal pine poles embedded in concrete.

The extent to which wooden poles have been used in this country is undoubtedly due in a large measure to the ease with which such poles can be obtained. In Europe, where wood is scarcer, the metal pole is much more generally used. It may be questioned, however, whether the use of iron and steel poles in this country would not make a much better numerical showing than it does were it not for the enormous extent of suburban and rural lines, of which wooden poles are so conspicuous a feature.

The iron and steel poles in use are tubular and are built up in sections to a height of as much as 50 feet. Of the sections, generally, three or four are used to a pole, with a cap and base, which in some cases are ornamental. Occasionally a metal pole is seen which is "built up," i. e., composed of several iron or steel channels joined together. Another variety of the metal pole is one that is made in one length and is seamless, constituting a solid drawn steel tube, although these are sometimes built up of two parts shrunk together. A standard American iron trolley pole with a length of 30 feet, built up in three 9-foot sections, weighs a little over 500 pounds. Some of the poles, however, are much heavier than this, and a standard pole of an all over length of 30 feet also weighs almost 800 pounds. The size and weight and ability to resist strain depends, in fact, very much upon the policy of liberality adopted by the company building the system. Where the pole is of the usual sectional type the various sections are sweated or welded together, and care is taken that the longitudinal seams in each consecutive piece are 120 degrees apart in order to increase the strength and distribute the strain, which with ordinary poles will reach almost 500 pounds, since in winter the poles frequently have to carry not merely the weight of the wires but an additional burden of ice and snow or sleet.

To take a few typical illustrations of current American practice, the Boston Elevated Company employs for straight work a three-section tubular pole weighing

from 700 to 800 pounds with tapering sections 6.5 inches, 5.5 inches, and 4.5 inches in diameter. Even heavier poles than this are used where a greater weight of overhead structure has to be held up, these poles weighing as much as 1,050 pounds, while on curves the tubular poles reach a weight of not less than 1,450 to 1,500 pounds. In Indianapolis, Ind., the poles are in three sections, weighing 600 pounds for straight line work and 1,400 pounds at curves. In Milwaukee, Wis., the poles used for straight line work are 28 feet long, built up of two sections of tubular steel, 8 inches and 7 inches, respectively, in diameter, and set in concrete. In St. Louis, Mo., the standard poles for straight line construction are in 28-foot and 30-foot lengths, with a weight of 545 and 650 pounds, while on curves 1,025-pound poles are used.

## IV.

### BRIDGES, TUNNELS, AND CROSSINGS.

*Bridges.*—Supplementary Table 1 gives the statistics with regard to the number and length of the different classes of bridges. These data include only structures owned by the railway companies, and no statistics as to the number or length of structures employed by the street railway companies under lease or franchise or other condition of that character are shown. A total of 2,721 bridges with a total length of 461,109 feet, or more than 87 miles, is reported for the United States. Of these bridges, 1,024, with a length of 156,061 feet, were of iron and steel; 574, with a length of 57,152 feet, were wooden; 931, aggregating 242,458 feet in length, were wooden trestles or trestle bridges; and 192, with a length of 5,438 feet, were of masonry. It will be seen from these figures that wooden bridges and trestles predominate, but that the work is of a varied character and that already a large proportion consists of iron and steel. Some features of this work vie with that of the same character done on steam railroads.

An interesting example of bridge construction is found on the line of the Conneaut and Erie Traction Company's railway completed since the figures of this report were taken and therefore not embraced in the above totals. This road, which renders possible a continuous electric railway trip from Detroit, Mich., to Westfield, N. Y., traverses such rocky and irregular country that considerable cutting, filling, and trestle work was necessary. One of the most serious difficulties was that encountered near Conneaut, where it was found necessary to build a steel viaduct.

One remarkable instance of trestles built for trolley work and of wooden construction is the bridge owned and operated by the San Francisco, Oakland and San Jose Railway Company. As the statistics embraced in the table indicates, the street railways around San Francisco and Oakland have long stretches of wooden bridges and wooden trestles, probably rendered necessary by the shallowness of San Francisco bay and other local conditions. In addition to these is the double track trolley pier which has a total length of 16,400 feet, with 14,423 feet of tangent track on the pier, and a height of rail above high water of 7 feet 9 inches. Regular 4-car trains ply over this trestle. The overhead construction is of the regular trolley type with cross suspension wires.

Another example, the New Jersey and Hudson River Railway and Ferry Company, in New Jersey, embraces in its line a variety of interesting illustrations of the amount of work that a street or interurban railway may have to do in this category. An extension of this system, made in 1900, although less than 3 miles in length, includes a steel viaduct 1,150 feet long, with a 70-foot plate girder span over the Northern Railroad of New Jersey; a double trestle 580 feet long with 70-foot plate girder draw over the Overpeck creek; and a steel viaduct with a 500-foot plate girder span over the West Shore Railroad. The foundation of the long steel viaduct had to be laid in a marsh, and it is interesting to note that while the company found that the estimates for a wooden trestle were lower than for the steel, the latter was more desirable, not only on account of its durability, but in order to avoid the danger of destruction by fire, the marsh and meadow grasses often catching fire in the fall in such a manner as to jeopardize any construction of wood.

Another important and interesting example of such work is the swing draw across the Hackensack river, giving entrance to the town of that name. As this is one of the largest drawbridges in the country, if not indeed the largest, employed for electric railway work exclusively, it deserves note. The approaches to the draw are over trestles at each end, the western trestle being 915 feet in length and consisting of 61 bents of 15 feet each, while the eastern trestle is 285 feet in length and consists of 19 bents of 15 feet each. The swing or draw of the bridge is 160 feet in length, and is equipped with electric motors and trains of gearing so that it can be opened and closed in one and one-half minutes. The bridge is designed to carry a full load of 30-ton cars on each track.

In general, no figures with regard to elevated railroads and inclined planes are included in this table, although it might be claimed that these were wholly of a trestle character or in the nature of a viaduct. Elevated railroads, however, have been considered and treated sui generis, though some figures with regard to bridges employed by the Brooklyn Rapid Transit system in connection with its surface track have been included in the table.

*Tunnels.*—Supplementary Table 1 includes also data with regard to tunnels employed in connection with street railway work. There were 27 of these, with an aggregate length of 19,803 feet. Up to the present time street and interurban railway work has been almost entirely free from tunnel construction. On grades

TYPICAL ENTRANCES AND EXITS, BOSTON SUBWAY.

ONE OF THE PASSENGER STATIONS IN THE BOSTON SUBWAY.

where the heavier nature of steam railway traffic would have required tunneling, the lighter character of street railway rolling stock and the conditions under which the smaller number of passengers has to be carried have usually enabled the street railway systems to avoid tunneling. A large proportion of the track also is laid in cities and villages where tunnels are rarely needed. Interurban roads, however, sometimes operate under physical conditions closely resembling those that have governed steam railway practice, and a considerable development in the matter of tunneling may therefore be expected to attend the extension of interurban construction and the change in the character of electric railway service.

Of the total length of tunnels, 19,803 feet, reported for the country, a length of 16,285 feet, or 82.2 per cent, was reported from three cities, Boston, Chicago, and New York. In Chicago, where, on account of the extremely level character of the country, one would perhaps scarcely expect to find a tunnel, there are five tunnels, with a total length of 5,971 feet under the Chicago river. They were built years ago to avoid the delay that would be a necessary incident of the traffic if the cars were compelled to wait for the opening and closing of drawbridges. The Park avenue tunnel, in New York city, accounts for 1,800 feet of the tunneling reported in the table. This tunnel, which runs from a little south of Thirty-fourth street, through Fourth and Park avenues, to Forty-second street, is to all intents and purposes a steam railway tunnel, and for most purposes may best be regarded as forming a part of the system by which the New York Central and Hudson River Railroad penetrates to the heart of the city. Indeed, the street railway to which this tunnel belongs was formerly under Vanderbilt ownership, and was one of the traction lines out of which grew the New York Central system. The tunnel therefore represents steam railway practice rather than a practice made necessary by actual street railway conditions. The greatest length of tunneling shown for any one company, city, or state is that reported by the Boston Elevated Railway Company, Boston, Mass. The tunnel used by this company in its subway service is 8,554 feet long, and it represents one of the most interesting and important developments of recent years in street railway work, marking perhaps a transitional stage in street railway operation. It lessens the congestion of traffic on the streets, while at the same time it obviates the need of resorting to a deep underground railway, like that now under construction in New York city. Indeed, it seems to have served its purpose admirably in almost every respect.

This tunnel system was laid out and carried through by what is known as the Boston Transit Commission, a body still pursuing further useful work of the same kind. After a preparatory period of several years the subway became available to the public in 1897. In a general way, the subway may be said to traverse the city from north to south, with a westward spur under the Boston Common and the Public Garden, the northern limit being the Union Station and the southern limit being in the vicinity of Tremont street on Boylston street. The street railway lines enter the heart of Boston from the north, west, and south, the east being water front. A majority of passengers leave the cars before or upon reaching the termini of the lines on the edge of the business section, but a large number find it necessary to continue their journey across and through the city to other districts or suburbs, and the subway meets their need for quick transit. Since the tunnel went into operation the original plan of the commission, that the subway should be used only for cars of street railway types, in single or two-car trains passing from the surface tracks, has been modified to permit the running of elevated railway trains through the subway from the elevated tracks of the Boston Elevated Railway Company.

The original contract for the use of the subway made between the commission and the West End Street Railway Company provided for the payment to the city of a fixed annual rental equal to 4⅞ per cent on the cost of the subway, payable quarterly, and for a further contingent payment to be determined as follows: All cars of a body length of 25 feet or less were to be reckoned as paying to the city a rate of 5 cents per car per one-way trip, longer cars to be rated proportionately; and if the amount so computed should in any regular three-month period exceed one-fourth of the rental payment mentioned above, the West End Company was to pay such excess, in addition to the fixed quarterly payment. During the quarter ending March 31, 1902, the company ran 1,038,097 one-way trips through the subway, estimated on the basis just explained. The cost of the subway to September 30, 1902, is set down as slightly over $4,000,000. A rough calculation shows, therefore, that the excess on contingent payment for the quarter must have been more than $2,000, the fixed payment being taken as about $49,000. The rental is based on a twenty-year lease.

Two types of construction were adopted for different sections of the subway. One consists of steel I beams, embedded in concrete, supporting a roof constructed of transverse steel beams or girders with brick or concrete arches between them. The standard height of this construction is 14 feet clear, above the top of the rails, the width of two tracks being 24 feet and of four tracks, 48 feet. The four-track subway has a line of steel posts along the center. The top of the rail is about 17 feet below the surface of the street and the station platform about 16 feet. The second form of construction consists of masonry side walls and a masonry roof. This form was adopted where the tunnel could be placed at a sufficient depth below the surface to make possible adequate provision for strength and stability by masonry construction, and where digging for sewers would not be likely to injure it. Elaborate pro-

vision was made for drainage, ventilation, and illumination, the light being furnished by arc and incandescent lamps. It was early decided that the two easterly tracks of the four-track subway should be for north bound cars and should have island platforms between them and that the westerly tracks should be for south bound cars, and should also have island platforms between them. The platforms have been built as near the surface of the street as practicable in order that the stairways might be as short as possible. The subway is entered by handsome little stations at the street level, giving independent access to each track. At the Public Garden, by exception, one enters the subway on the street level, the cars entering and leaving the tunnel through an open avenue which leads, by a general slope 318 feet long, from the surface of the ground to the subway portal, which is inclosed by an iron fence with granite walls and concrete masonry.

*Steam railway crossings.*—The subject of bridge and tunnel construction is allied in some degree with that of safety provisions for steam railway crossings. The schedule of inquiry embodied a request for information as to the number of such crossings protected and of such crossings unprotected. From the statistics shown in Table 94 it appears that there were 4,481 steam railway crossings encountered along the tracks of street railway systems. Of these, 2,514, or 56 per cent, were protected, and 1,967, or 44 per cent, were unprotected. The protection referred to varies in character; in some instances it includes the depressing or raising of the tracks. Where a crossing is made by an overhead track, the street railway company naturally employs a bridge or viaduct, and such construction would be included in the returns already discussed. On the other hand, where the street railway depresses its tracks, the steam railway, of course, crosses over the street railway on its own bridge. These matters are generally a subject of adjustment between the different interests, although in many cases the dispute over right of way has been attended by litigation and even by physical conflict and the tearing up of tracks. Crossings are also said to be protected when provision is made for giving warning by a flagman or an alarm bell, but provision of this nature has but too often been found inadequate. Serious accidents and fatal collisions, due to the failure of such protection, are fresh within the memory of the public. Within recent years, work of a costly and elaborate character has been undertaken in such cities as Chicago and New York to obviate the need of having the street railway and the steam railway lines cross at grade. The New York Central and Hudson River Railroad Company, whose lines lead immediately into Manhattan Island, were crossed on the level by street railways at numerous points, until the completion of the viaduct and of the sunken way which now extends for miles out into Westchester county. The reform in this direction of late years has been quite considerable in all large American cities, and has been prosecuted at an enormous expense, so that, of the steam railway crossings now reported as unprotected, a large proportion are to be found in rural districts. Strictly speaking, they seem to be most numerous along the fast interurban roads which necessarily cross main lines of steam railway in outlying regions with such infrequency as not to necessitate any elaborate measures of precaution, but permitting both the steam railway company and the interurban street railway company to depend upon the intelligence of the motorman and conductor, governed by the rigid rules laid down for their guidance as to behavior at such intersecting points. The general practice with all street railways is to cut the overhead circuit at the railroad, so as to avoid any obstruction there, and to carry the street railway cars across by their momentum. The American Street Railway Association has in recent years endeavored to establish a national code of standard rules for the men employed. The development of interurban signaling may be gathered from the fact that for the year 1902–3 the special committee on this subject presented a section of about 2,000 words containing suggested rules, whereas before that time no special rules had been suggested, except a few on the subject of semaphores and color signals. While these rules do not necessarily or even largely relate to steam railway crossings, they do embody a variety of careful and explicit instructions, the observance of which should in every case be sufficient to prevent any accident. As a general thing, the methods of signaling advocated and formulated by the association committee follow closely the methods employed on the steam railways, and the rules, as reported, have proved satisfactory to the state railroad commissioners to whom they have been submitted.

# CHAPTER III.

## CARS AND MISCELLANEOUS EQUIPMENT.

### I.

#### STREET RAILWAY CARS.

*General statistics.*—The statistics of cars and miscellaneous equipment connected with cars are to be found in Table 95. There were 66,784 cars of all classes reported to the Bureau of the Census, or almost exactly 3 cars per mile of track. Of this number, 60,290 were passenger cars and 6,494 were cars used for express, company work, or other purposes. Of the passenger cars, 32,658 were closed and 24,259 open, the latter style being reported very generally by all the companies, both North and South. One hundred and five companies reported 3,134 combination closed and open cars, of which 1,203, or 38.4 per cent, were used by 22 companies in California alone, the state in which the combination car had its beginning. Subsequent portions of this chapter deal with the evolution and typical features of this type of car, which bids fair to become a prevalent, if not a preponderant, style in the near future. Combination passenger and express cars were reported by 99 companies, the number used being 239. Cars used for more than one service have been enumerated but once. Cars carrying express, mail, etc., in addition to passengers have been classified as primarily passenger cars, the other service being more or less incidental to the regular functions of the car.

The use of special express, freight, and mail cars was reported by 205 companies. The largest number of these cars was shown by an interurban freight line, the St. Louis and Belleville (Ill.) Electric Railway Company, operating in the vicinity of St. Louis, which, with 213 cars and 2 electric locomotives, reported 209 cars for express, freight, and mail purposes. These cars, however, were without electric equipment, so that this road could hardly be taken as typical of the manner in which a freight service has been built up in connection with a regular passenger system. The 1,727 snowplows reported do not include snowplow attachments of a removable character, but are cars regularly and exclusively used for clearing the track. This is true also of 793 sweeper cars, while cars employed as both sweepers and snowplows are counted but once in the class in which the larger part of their work would place them.

Out of 66,784 cars of all classes reported, 50,699 cars were provided with electric equipment. The roads operated entirely, or in part, by electricity reported a total of 65,949 cars of all classes, the number provided with electric equipment being 76.9 per cent of the total.

*Distribution of cars.*—The largest number of cars of all classes was reported by the state of New York, with 14,040, or slightly more than 20 per cent of the total. Of this number, a little more than one-half was reported by three systems: The Interurban, of New York city, 3,063; Brooklyn Rapid Transit (surface and elevated), 3,504, exclusive of 121 steam locomotives; and the Manhattan (elevated), 1,331, exclusive of 292 steam locomotives. The figures of the Interurban, in New York city, should include additional cars of the other systems operating under the same management, which are reported separately. The total number of cars reported in the state of Massachusetts was 8,310, of which 3,612 were owned by the Boston Elevated Railway Company. This is the largest number reported by a single company, and includes cars operated on surface, elevated, and underground tracks. Illinois is third, with 7,788, of which about two-thirds were reported from Chicago. The other important states are as follows: Pennsylvania, 7,058 cars, of which 3,283 were returned by the Union Traction Company, of Philadelphia, and 1,252 by the Pittsburg Railways Company, of Pittsburg; Ohio, 4,395 cars, the largest number, 1,105, being reported by the Cincinnati Traction Company; Missouri, 2,484 cars, of which about half were to be found in and around St. Louis, the St. Louis Transit system alone reporting 1,179; New Jersey, 2,165 cars, largely engaged in New York suburban business on the New Jersey side of the Hudson river; California, 2,056 cars, of which 1,005 were reported by the United Railroads of San Francisco; Michigan, 1,757 cars, of which 920, or more than one-half, were the property of the Detroit United Railway Company; Indiana, 1,146 cars, a large proportion of which were in service in and around Indianapolis; and Minnesota, 1,083 cars, nearly all being operated on the Minneapolis-St. Paul system.

*Express, freight, and mail cars.*—Two hundred and five companies reported a total of 1,114 cars devoted

solely to express, freight, or mail business. The largest number reported by any one company was that of the Belleville (Ill.) system, which, as already noted, is a freight road rather than a street railway within the common acceptation of the term, and which had one or two electric locomotives to haul its ordinary freight cars. The freight and express business is largely confined to interurban roads, but mail street cars are employed in a number of cities. The states showing the largest number of cars of this class are New York with 181 and Massachusetts with 94.

*Work and miscellaneous cars.*—The distribution of work and miscellaneous cars does not call for much comment, as practically every independent street railway system requires such an equipment for its ordinary maintenance and operation, and the larger the system the greater, necessarily, will be the number of such cars. The number of these cars owned by any road depends upon the amount of repair work done, the length of track covered, and the amount of construction work performed by the company's own force and equipment. The states showing the largest number of cars in this class are New York with 452 and Pennsylvania with 285.

*Snowplows and sweepers.*—For the United States, as a whole, 1,727 snowplows were reported. Out of the number thus given, 740, or nearly one-half, were reported for the state of Massachusetts, and of these 534 were owned by the three systems of Boston and its suburbs. New York state reported 241, of which 70 were owned by the two leading systems in New York city and Brooklyn. Sweepers, reported separately in the table, are sometimes employed for the same purpose as snowplows. The snowplow is equipped with a share, usually so adjusted that it is free to conform to the unevenness of the rails, and is often provided with an indicator showing the exact height of the share from the rail. The plow pushes the snow by sheer force to the side. The sweeper, on the other hand, is equipped with rotary brooms or brushes, the brooms being set at an angle to the shaft and also at an angle to the car track, so that they throw the snow clear of the rails rather than ahead. The brooms can usually be raised or lowered by levers, and some of them are double-enders—that is, with a broom or sweeper at each end of the car. Both snowplows and sweepers are necessarily heavily motored and are ordinarily run over the tracks at high speed. While sometimes used for snow removal, the sweeper is commonly employed for street cleaning purposes, and in some cases has sprinklers attached, so that the street can be sprinkled ahead of the sweeper brooms, or after it, as desired. There were 793 sweepers reported for the United States, of which New York state reported 188 and Pennsylvania 155.

It is obvious that an additional burden is thrown upon roads situated in the snow belt, which are compelled throughout the winter months to operate constantly one or both of these forms of apparatus for keeping the tracks clear. In like manner third-rail roads in the more northerly latitudes often have rail trouble to contend with, in addition to keeping their tracks clear of snow, especially if such roads are on the surface. This trouble is due to the necessity of keeping the head of the third rail clear of ice and sleet, which forms a partial insulation and prevents the delivery of current to the contact shoes. This difficulty has been met generally, not by separate cars for clearing away the ice or sleet, but by placing sleet cutters or grinders under the sills of the traveling cars, so as to clear the way for the shoes just behind. It is of course easy to equip the plow or sweeper on such roads with these additional devices for keeping the whole track clear.

No figures were obtained separately as to the expense of snow removal, but in a long and hard winter the addition to operating expenses due to this cause is quite marked. The report of the railroad commissioners for New York state for 1902 includes some very interesting figures on the subject. The Metropolitan Street Railway Company, of New York city, reported for that year, the winter of which was a moderate one, an expenditure of $43,826 for the removal of ice and snow. The Brooklyn Heights system reported $44,014 for this purpose, in addition to $13,449 for cleaning and sanding the track. The Rochester Electric system reported for the same two items, $10,388; the Buffalo Street Railways, $6,691; and the International Railway Company, operating in the Niagara region, reported for the removal of ice and snow alone, $15,656. The Hudson Valley, operating through the northern portion of the state, reported $3,392 for the removal of ice and snow and cleaning track. At Schenectady the outlay reported by the company was $3,394 for removal of snow and ice and $2,554 for cleaning and sanding track. Such figures as these indicate the heavy expense incurred in dealing with the weather conditions in the Northern states.

## II.

### PASSENGER CARS.

*Early styles.*—Few classes of street railway equipment have undergone greater changes than have cars and trucks. The very first cars used were nothing but stagecoach bodies running on tracks, and for many years, in street railway as in steam railway coaches, could be traced the signs of their origin in the curves of the old stagecoach body.

There was soon manifested a tendency, however, to give to street cars a square or box-like form corresponding to that of the steam railway cars about the middle of the last century. The pattern of the old universal 16-foot horse car, similar in design to that of the stagecoach, persisted, however, up to the time when cable traction was introduced, and even to-day some of the old-fashioned "bobtail" cars still exist. These

TROLLEY MAIL AND PASSENGER CAR, BOSTON, MASSACHUSETTS.

INTERURBAN TROLLEY EXPRESS CAR IN MICHIGAN.

early cars were of very light construction, the body being entirely of wood, lightly veneered, the wheels of iron, and the cars themselves almost as springless as a country buckboard. An example of this form of car is shown opposite page 160, the cut being made from a photograph secured by one of the special agents of the Bureau of the Census while collecting data for this report in Alabama.

The cable, however, compelled street car builders and street railway managers to face the new problems of weights and strains, and one of the first results was the abandonment of the bobtail car, and the construction of vehicles of larger carrying capacity. Mr. John Stephenson, the famous American street car builder, has stated that in 1882, out of 428 roads then in operation, 279 were equipped with small bobtail cars and only 149 had large cars requiring a conductor as well as a driver. At that time two-thirds of the orders on his books were for the small cars. He stated that one of the main reasons for their use had been that three of the small cars could be used successfully when two large cars had proved a failure, the three giving a somewhat quicker schedule. Another reason was that the short bobtail car avoided strain on the horses. Two horses seldom start together, but in the case of a bobtail car one horse could easily do the work with better footing on the track. The objection to bobtail cars that passengers found difficulty in pushing their way to the front of the car to deposit fares in the box under the eye of the driver was, he thought, overcome by the device, then new, known as a "fare conveyer." This consisted of metal tubes passing around the interior of the car, and sloping from the rear down to the front in such a manner that a coin deposited in the tube, acted upon by gravity, would roll down into the fare box. Such conditions were, of course, improved by the introduction of the conductor on the horse lines, and largely disappeared when the cable car was introduced.

The labor of animals under the old horse car system was very severe, and their lifetime in the service was brief. The most severe strain was in the frequent stopping and starting of cars, during which the horses wrenched themselves, slipped and fell, and were compelled every few hundred yards to pull a heavy load from its dead rest. In New York city full cars often made a dozen starts from dead rest within the distance of two city blocks. It was estimated at this time that this strain resulted in shortening the life and utility of horses in the service on the average from three to five years.

An element of risk and uncertainty in connection with the use of the horses was found in their liability to disease, which sometimes took an epidemic form, completely paralyzing large railway systems. The daily travel of a street car horse averaged only 10 miles with single cars and 15 with double cars. With one day in seven given to the horses for rest, a large number of relays were required, and hence huge stables became necessary. Many of these had to be placed in parts of the city where real estate was expensive. At the same time the presence of such an establishment tended to reduce the value of property in the vicinity on account of odors and other unsanitary conditions. In hot summer months large numbers of car horses died on the streets in harness, and at all times a large veterinary staff was maintained to keep the stock in condition for its duties. Moreover, the stables needed a large force of hostlers, shoers, and stablemen, as well as elaborate arrangements for the supply of feed and the removal of refuse.

It is not surprising that street railway managers were somewhat eager to break away from these conditions, but as late as 1890 there were nearly 15,000 horses engaged in hauling street cars in New York city alone. Allowing an average of 40 square feet to each horse, or a stall 9 by 4½ feet, these 15,000 horses occupied some 600,000 square feet of stall space in the stables. They were required to haul some 2,400 cars, an average of not less than 7 horses to each car, the number based on cars in actual use being somewhat larger.

As already noted, one of the first changes in the style of the street car was the adoption of the box form, with vertical and horizontal lines instead of the curves of the old stagecoach or the omnibus. The lower part of the sides of the omnibus were made concave in order to provide space for the large wheels, but the small wheels of the street cars could be put entirely under the body, so that the concave form was no longer necessary.

When the cable came in, requiring a car that would withstand the different strains and the heavier loads, the science of car building had to be studied again. Some idea of the changes necessary may be gained from the fact that even in one of the old-fashioned 16-foot cars as many as 1,300 pieces of wood were required. In the cable car, not only were heavier timbers needed for structural body work, but resort was made to iron and steel as a substitute for wood where a gain in strength would follow their employment. The adoption of electricity again made changes necessary in the car-building art, due to the fact that cars now carried their own self-propelling mechanism. In America neither the horse nor the cable developed for permanent use cars known as double-deckers, those in which the passengers may ride on the roof as well as within the car. In England the double deck car is almost universal. The outside seats permit of smoking, and are attractive for observation purposes. Women as well as men use them freely. In Paris, which is one of the very few cities on the continent of Europe where double deck cars are used, a lower fare is charged for outside seats. Possibly for climatic reasons the double deck car and the omnibus with outside seats have never been popular in the United States. There are, however, some sections of the country, such as the South and California,

where they could be easily adopted if the public desired. Some of the horse and automobile stages in New York have had outside seats, but the street cars have always been single deckers. Double deck cars have been tried in Washington, Pittsburg, Boston, and some other eastern cities, and also in Oakland and San Diego, Cal. It is obvious that in making provision for the upper deck the style and type of the construction must be greatly modified. In dealing with American practice it will be understood that single deckers are always referred to.

Before proceeding to the subject of electric street cars, it may be pointed out that the cable system introduced the trailer, a type of car which was previously unknown. With horses one car was all that the team could pull, but with cables, so long as the gripping mechanism under the grip car was strong enough to hold, and so long as there was power enough applied to the traveling cable in the conduit by the power plant, there was no reason why a train of cars could not be hauled. In this way the cable system developed both the grip car and the trail car. Toward the close of the cable era it was not an uncommon thing to see a grip car hauling three or four trailers, constituting a regular train like those running on steam railway tracks. The grip car constituted the locomotive, but being without the faculty of reversing its motion and direction in case of emergency, it could not stop its heavy train quickly, and serious collisions and accidents took place.

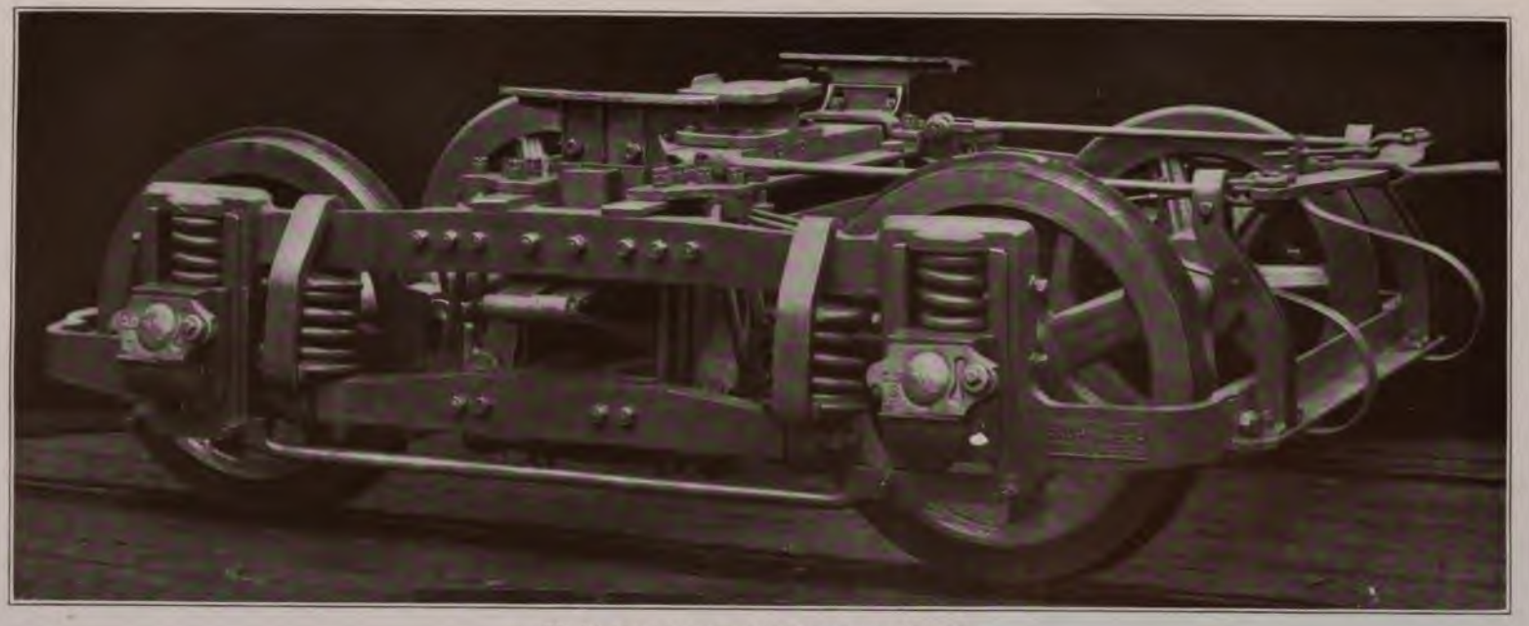
As with horse cars, the first cable cars, whether grip or trailer, were closed. The open cars for summer use came later. A further modification was found in the combination car, a part of which is open and the other part closed. A later improvement was the addition of what has become known as the vestibule, an inclosure occupying the front and rear platforms and affording shelter and protection to the drivers. One other fact to be noted in cable car development was the use of 8-wheel as well as the 4-wheel cars. The use of double the number of wheels and trucks made the car much more comfortable. But the running gear of a 4-wheel horse or trail car could hardly be regarded as a truck in the sense in which that term is applied to the appliances upon which the body of the mechanically propelled cars is mounted. The self-contained motor truck may be said to have come into use with the advent of electric traction.

*First electric cars.*—The earlier forms of electric car bodies and trucks adopted in the United States must be regarded as no less experimental than were the motors and other features of electric traction upon which the success of the art depended two decades ago. Hardly a car existed at that time built specifically for electrical work, an old horse car, or possibly a cable car, being usually put into shape to receive the electrical apparatus. There was no agreement as to whether the motor should be put under the car or on the front platform, or in the middle of the floor of the car itself, and the arrangements for the overhead trolley connections were equally indefinite. Nevertheless, it was out of the early and confused attempts at construction that the present forms appeared.

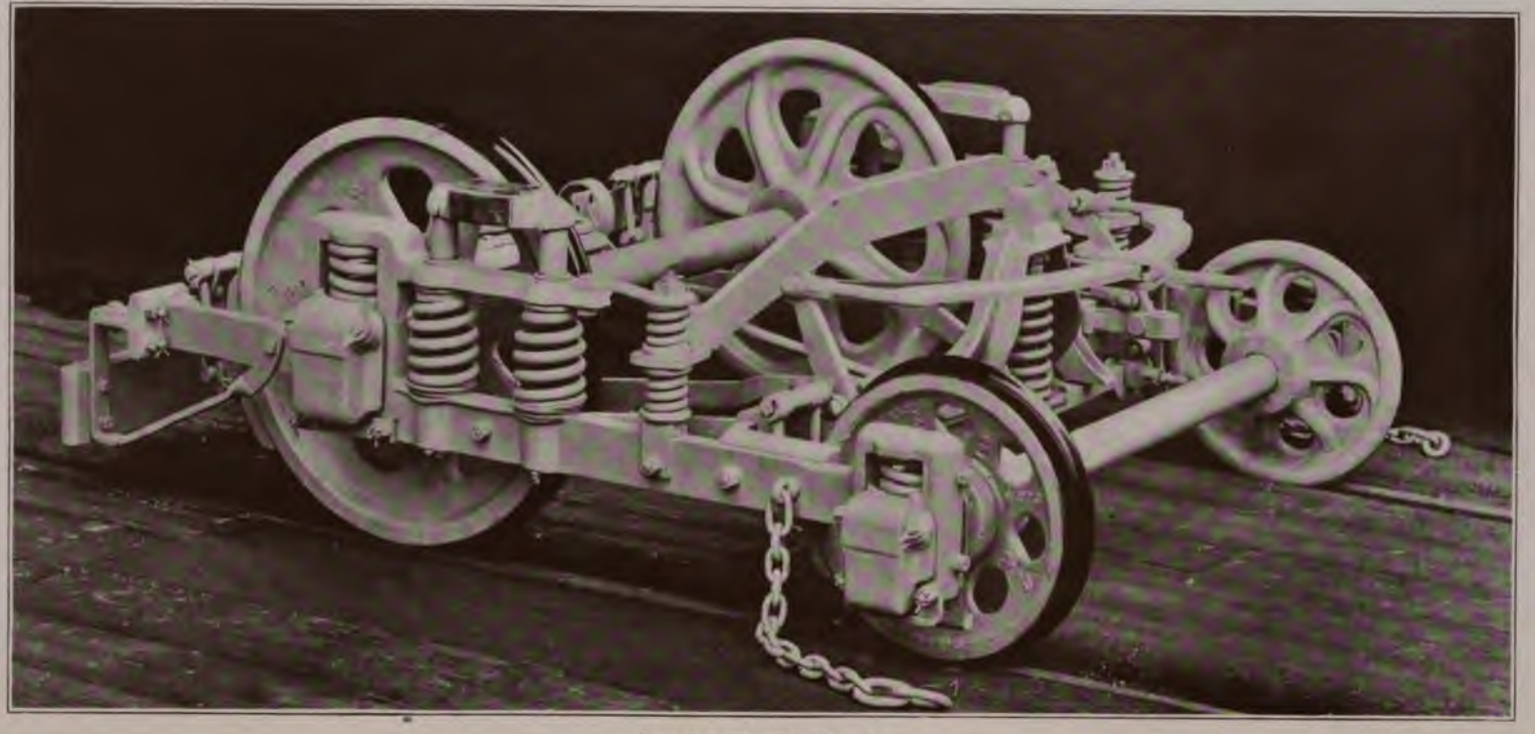
Along with the improvements in the forms of motors and methods of motor gearing, as well as in the overhead appliances, went experiments and improvements in the car bodies and car trucks. In the beginning there was the primitive single truck, and 5 or 7 ton cars, and now there are the long double-truck cars, equipped with 4 motors each, and weighing 20 tons. For some time the single motor trucks with 16-foot, 18-foot, and 20-foot cars persisted, but double-truck cars, from 30 to 40 feet in length, were later generally adopted as a standard in cities of any considerable size. The separation of trucks from the car body also brought into existence a new class of manufacturers, devoting their energies particularly to truck construction. The truck itself began to take on the girder form; some of the manufacturers built a special type of pressed steel frame, and others introduced cantalever principle.

It was soon found that the horizontal and vertical stresses in an electric car were very different in ratio and intensity from those experienced in a steam locomotive. The locomotive hauls a heavy load, its own propulsion being merely incidental, while the electric car has to propel itself with a heavy load on board, and only occasionally does it have a light trailer attached. Hence, the locomotive has been given a high degree of lateral as well as vertical stiffness. According to Mr. Edgar Peckham, whose name is closely identified with the subject, riveted cantalever truck frames were furnished to the Brooklyn City Railway, of Brooklyn, N. Y., in 1892, for use under 20-foot closed cars having an over all length of 28 feet. These were the first electric cars built of that length, and it was questioned whether a single truck with a 7-foot wheel base could support such a car body. As the result of the trial with the cantalever truck at that time, over 1,200 were supplied to the road in 1893, 1894, and 1895. These remained in use for several years afterwards without loosening their rivets, and thus demonstrated the ability of the cantalever truck to carry its load successfully under severe conditions.

The other general type of truck is that known as the Brill solid or wrought forge frame, which embodies the application of an opposite principle. This has also enjoyed a large amount of patronage from street railway companies. At the present time the practice is still more or less divergent in this respect, some makers forging the side frames of the truck and welding the whole together into one piece, while others adhere to the bridge-and-truss plan and build up what may be called an assembled truck. The disposition of springs under the truck to support the weight of the car varies greatly among different builders, but the results aimed at are



TRUCK FOR HEAVY DOUBLE TRUCK TROLLEY CAR



MAXIMUM TRACTION TRUCK.

the same in every case, namely, smooth running; rigidity of frame that will withstand the stress tending to throw the axles out of alignment when the car is rounding curves; ability to resist longitudinal strains due to incidental changes in the contour of track; and the reduction of the uncushioned weight on the wheels.

*Modern electric cars.*—In the construction of modern street car bodies the larger proportion of the material consists of lumber, certain woods being favored and generally used. In the beginning a great many different kinds of wood were used, some cars being elaborately decorated, but at the present time plain trim is the rule, even in parlor and private cars. The kinds of wood in use for structural purposes, such as bottoms, platforms, sides, and ends, are white oak, white ash, yellow pine, poplar, white pine, rock elm, and hickory, or woods which answer to these general names; while for finishing purposes cherry, maple, and white ash or poplar, white oak, bird's-eye maple, red birch, and mahogany are employed. The oak, ash, and hard pine come chiefly from the southern states of Tennessee, Kentucky, Mississippi, Alabama, Georgia, and Florida; the birch, cherry, and hard maple from more northern states and Canada, and the mahogany from Central America and Mexico.

Glass is also an important material in street car building, consisting usually of window glass and plate glass styles, but including also some opalescent glass and colored glass for ornamentation and for signals. Plate glass has come into very general use of late years, not only because it is stronger than ordinary window glass, but because it adds very much to the appearance of the car and to its attractiveness.

The upholstering of cars varies greatly. At one time street cars were usually upholstered with woolen material, but this practice is not now so general, objections being raised to it on sanitary grounds. The backs and seats are now of plain wood, rattan, leather and its various substitutes, or light carpet, which can be readily removed. The curtains are made of various materials, some being prepared especially for the purpose, but not differing greatly from those employed on steam railroads. Wooden sliding blinds or shutters, once popular, are not now in use to any extent. In early days of street railroading it was not unusual in winter to find the floors covered with straw for purposes of warmth, a practice which, however, has long been abandoned on account of the introduction of various artificial methods of car heating. The floors are now often covered with frames of wooden slats, which can be easily removed for cleaning purposes. The car builder or street railway company to-day usually purchases a great many of these materials in the open market already made up. This is also true to a large extent of the various metal parts, of iron, steel, brass, etc., needed for the car trimmings and finishings.

Such details as car lighting, heating, etc., are discussed in other sections of this report. Descriptions follow as to typical city cars. Special attention is also given elsewhere to interurban roads. The standard closed car in Baltimore measures 28 feet in length over end panels and 38 feet over crown pieces, has a width of 7 feet 10 inches, and weighs without passengers or motors 21,760 pounds. It is fitted with portable vestibules, and the end door is set slightly to the side nearest the step, so as to make entrance easy. The platforms are 5 feet long. The seats are arranged longitudinally, a practice generally followed with closed cars in cities, although a great many have cross benches. The standard open car in Baltimore is 38 feet 9 inches over crown pieces and has 12 benches running across the car. It is fitted with a 9-inch running board on each side, with folding steps of iron, the height of the running board from the head of the rail being 18½ inches. Complaint has been made frequently of the height of the running board or step, but it is unavoidable because of the space required under the car for the larger and heavier motors now in use. An engraving is here shown of a large open car of the standard type employed in Buffalo, New York.

The standard closed car in Boston has a 25-foot body with platforms about 4 feet long, the step being 16 inches from the rail. The weight of these cars complete is 24,660 pounds. They are mounted on maximum traction trucks or center-swivel double trucks. The standard summer car is a 12-bench open car of about the same length, on double trucks. Some 9-bench open cars on single trucks are also in use.

In Chicago, Ill., a type of semiconvertible car has been introduced which is one of the heaviest and longest known. This car is 48 feet 2 inches in length and weighs 48,000 pounds. Each platform is 6 feet 5 inches long. The width of the car body is 8 feet 8 inches, which provides for a center aisle between the cross seats. The height of the step from the rail is 16 inches, and from the step to the platform, 12 inches. The window sash lowers into the space between the car sheathing and the inner wall, and a low window sill provides a large window space which adds to the comfort of the car in the summer. The opening at each end of the car has sliding doors, and is the full width of the aisle when both doors are open, the doors, however, being independent of each other, so that only one need be opened at a time. At transfer points and termini both doors can be opened and the car quickly emptied by allowing the passengers to leave two abreast.

In Milwaukee, Wis., a standard car adopted some seven years ago is still in use, the only change in its original style being that four motors are now employed instead of two. The car is of the semiconvertible type, with cross benches, accommodating 44 passengers. It rests on center-swivel trucks equipped with 4 motors and 33-inch wheels, and has one step between the rail

and the platform and a rise from the platform to the car. In this last respect the car was an innovation, scarcely a car of this type and size having previously been known which possessed so low a platform and in which only one step was needed between the platform and the ground. The latest type of city car built in Milwaukee upon these lines is 41 feet long over the bumpers. Double side sills allow the sash to be lowered between them, and the window sills are made a little lower than usual, so that the car is practically an open one when the windows are lowered in summer. Owing to the narrowness of the bridges that the cars have to cross, protective wire netting is placed at each window opening in summer.

The combination type of car, half of which is closed and half open, is said to have had its origin on the Pacific coast, where it is still in use. The earlier types of combination cars on the United Railroads of San Francisco had longitudinal seats in the open section, facing outward, a feature which is quite unusual except in observation cars, such as may be found along what are called scenic routes. Such cars are found, for example, in the Niagara gorge, with seats facing toward the water. The newer cars in San Francisco have cross seats in the open parts, with center aisles, the closed part, occupying the middle of the car, having side seats, and being entered from either end. The motorman or brakeman is stationed in the center aisle of the front open portion. The newer cars are 39½ feet over all, have a seating capacity of 44, and weigh 33,500 pounds.

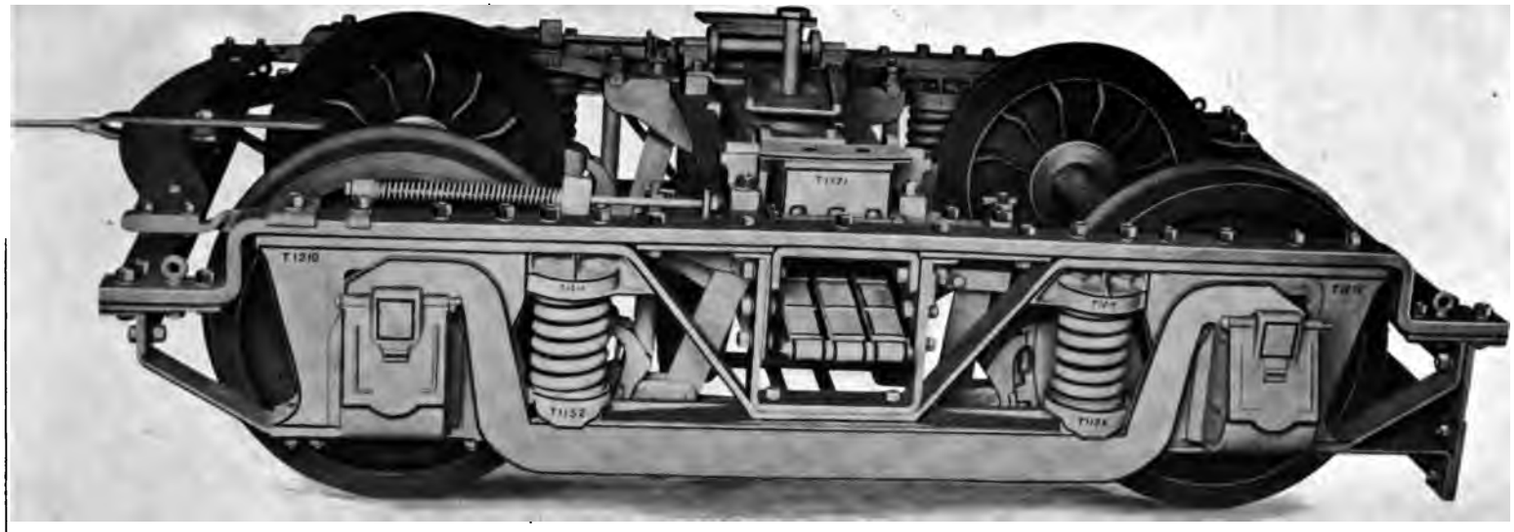
In St. Louis, Mo., the semiconvertible car was first tried on a large scale, and almost all the street railway lines were equipped with this type. The latest cars ordered for St. Louis, to handle the World's Fair traffic, are of the semiconvertible type, suitable for use the year round. They are 44 feet 8 inches over all, with a body 33 feet 4 inches, mounted on center-swivel short-wheel-base trucks, carrying two motors on each truck. They are box shaped, without curves, being 9 feet in width both at the sill and at the belt rail. Channel irons serve as side sills and form the principal part of the car bottom. The platforms are of unequal size, the cars not being double-enders in the ordinary sense of the word. The front platform, 3½ feet long, is for the motorman, and for entrance and exit to the car, but not for passengers. The rear platform is 7 feet long and in three divisions, separated by hand rails. The division next to the door is intended to be kept clear for the entrance and exit of passengers, and the other two are for passengers, the hand rail furnishing a support to those standing on the platform, very much as the car straps do to those standing up inside the car. There is an opening in the railing at one point providing a standing place for the conductor. This is a modification of what is known as the Detroit platform referred to under the description of the Detroit cars. The seating capacity of these cars is 50 passengers. Another feature in St. Louis has been the introduction of a summer car which is practically without a roof. It has simply an awning as a protection against the weather, but this awning is usually kept rolled up so as to offer no obstruction to the free circulation of air. This car seats 96 persons, and in the warm, sultry evenings enjoys a large and grateful patronage.

In Philadelphia, Pa., the car last adopted as a standard is of the semiconvertible type, 38 feet over all, with 28-foot body, seating 40 passengers, and weighing, without load, 32,000 pounds. The body is so low that only one 13-inch step is needed to reach the platform, with an 8-inch rise from the platform to the car floor. Philadelphia adhered for a long time to the ordinary closed type of car with longitudinal seats, but the last 600 cars have been built with cross seats.

In Pittsburg, Pa., there are three types of cars in use, a single-truck open car, a single-truck closed car, and a double-truck closed car. The company uses trailers to some extent, with open cars, but is unable to use double-truck open cars on account of the narrowness of the streets. The latest double-truck closed cars are 42 feet 8 inches over all, with 30-foot bodies not less than 8 feet 6 inches wide at the sills, with straight sides and equipped with side seats. The single-truck closed cars have an over all length of 30 feet, being equipped with side seats and are somewhat narrower than the double-truck cars. The single-truck open cars are 24 feet 3 inches over all, 7 feet 10 inches wide, and fitted with 22 cross benches.

In Indianapolis, Ind., because of the heavy summer traffic, the open car is used to such an extent that it is a question whether it will ever be superseded by the semiconvertible type. A large number of these open cars are on single trucks, are 34 feet 5 inches in length over all, and have 12 benches seating 60 persons. The standard double-truck semiconvertible car employed on the system has a length over all of 45 feet and a body length of 32 feet, with a 6-foot rear platform. The front platform is occupied by a motorman's cab, which is so arranged that passengers can enter and leave the car by the front platform without interfering with the motorman. Part of the car seats are cross benches and part are longitudinal, and the seating capacity is 52 passengers. The car body is entirely straight in its lines, and the paneling is of sheet steel instead of wood which is the usual material.

In Detroit, Mich., a number of the open cars on single trucks have remained in use, but the later type is semiconvertible, with a center aisle and cross seats, the length of the car over all being 41 feet and the seating capacity 43 passengers. The front platform is 5 feet 6 inches, with a passenger entrance and a separate compartment, for the motorman, provided with a hot air heater. The rear platform is 6 feet 6 inches long, with provision for considerable standing room. It is what has become known as the Detroit type, the passenger



HEAVY TYPE, CANTILEVER TRUCK FOR TROLLEY CAR.

TYPE OF SNOWPLOW.

entrance being divided from the rear part of the platform, which limits the standing passengers by means of an iron or brass rail carried completely across the platform. This type of platform is in use in other cities, although sometimes modified, as in the St. Louis cars already mentioned.

The city of Denver, Colo., has a car which is quite different from that usually found either on the Pacific slope or in the East. It is 41 feet 6 inches over all, with a width of 8 feet 2 inches at the belt rail. It has no rear platform, as platforms are usually constructed, but has a platform or landing at the middle of the car, the entrance being at the side between two compartments. The front compartment is a closed one for nonsmokers, equipped with cross benches, and can be converted into an open car in summer by lowering the windows. The rear compartment is for more general use and has an open compartment for smokers. The side entrance and exit has the advantage that it can be more easily watched by the conductor, and that it can not be blocked by standing passengers, as can the platform. The seating capacity of the car is 48 passengers. There are two steps from the ground to the car, and it can be entered from the motorman's vestibule as well as from the side. It is well adapted to the variable climate of Denver.

A good illustration of the latest car construction in the South is to be seen at Atlanta, Ga., in the semiconvertible car of the Georgia Railway and Electric Company. On this car the lower side panels serve as sill plates, which, besides stiffening the side and giving longitudinal strength, provide a guard against injury to the car from collision with vehicles. It has straight sides, but the guard rail, and the division of the upper and lower panels give it a curved appearance, which is more graceful than that of the vertical box form. The sills are unusually low, bringing the top of the window sills only 24 inches above the bottom of the car. The windows are protected by three bar outer guards extending from corner post to corner post. The windows are stored in wood pockets in the manner often used in this type of car, and can be raised either full length or only part way. The car has a 4-wheel single truck base, and is 30 feet 8 inches long over crown pieces, and 7 feet 10½ inches wide over the sills.

The accompanying view of the interior of a semiconvertible car corresponds in general to the descriptions which have been given of cars of this type. There are, of course, numerous variations, embodying the ideas of manufacturers or street railway managers.

From the data which has been given, a general idea may be formed of the practice in the large cities of the United States with regard to the leading features of car construction. It will be seen that the semiconvertible car, adapting itself to city use for both summer and winter, during all weathers, has come into general use, although closed box cars with longitudinal seats for winter and open cars with cross benches for summer, are still the standard in New York city, Boston, Baltimore, Pittsburg, Cleveland, and Buffalo. Even in cities like New Orleans and Kansas City, where the milder climate might be expected to make open cars more popular, the semiconvertible car has been introduced. As a matter of fact, it has been the practice in New Orleans to use closed cars throughout the year, the severe thunderstorms which break over the city so frequently and so unexpectedly during the summer months preventing the abandonment of this type even during the warmest weather.

The semiconvertible car is in favor with the managers of street railways because it avoids investment in a double set of car bodies and the necessity of changing from summer to winter equipment, and it is also in favor with the public. Although it is not so open as the open type of car, it is a better protection in case of bad weather, and the speed of the car insures an adequate circulation of air. Again, with an ordinary open car with running board along the side, the passengers can not quickly discover a vacant seat or change easily from one bench to another. It is, in fact, almost impossible for a woman to do this except while the car is standing still. But with the semiconvertible car and its center aisle, a change can be easily and safely made from one bench to another. Furthermore, exit and entrance at the end of the car, directly under the eye of the conductor, can be made with more safety. It would appear, moreover, that passengers as a general thing prefer cross benches, giving a view outside, rather than the longitudinal benches which face inward. The semiconvertible cars, however, do not appear to be equal to the strain of abnormal traffic, such as comes upon roads at holiday seasons, particularly in the summer time, and for this reason many of the roads retain open cars for such traffic because they can be packed to a much greater degree.

The length of cars has been greatly increased, but limits in this respect are found in the difficulty of rounding curves of short radius, where the streets are narrow, and the interference with other vehicular traffic. It is probable that a car which has a length over all of more than 48 feet has reached the reasonable limits for city service, for with the increase of length goes an enormous increase in weight. Some eight or ten years ago the average dead weight per passenger with single truck electric motor cars averaged about 600 pounds. It has now reached 800 pounds on many of the semiconvertible and closed cars, and in the newer long cars of the Chicago City Railway Company the weight is over 900 pounds.

The American street railway manager or car builder has very little to learn from European methods. In England the double-deck car is largely in use and very few single-deck cars are to be seen. The same is true of Paris, where the inside seats are reserved for first-class passengers at a higher rate of fare than is charged

the second-class passengers outside. The standard car for city service in Germany, Austria, Belgium, and in fact throughout nearly all of Europe, except in the city of Paris, is a single deck, single truck car, restricted in width and in over all dimensions, because of narrow streets and sharp curves, but with comparatively long platforms, to accord with the law which permits a certain limited number of passengers to stand on both platforms.

Double-truck cars with single decks are being introduced into certain cities with wide streets, as Berlin and Budapest. Open cars are used very little in any part of Europe, except in Italy, because of the uncertainty and dampness of the climate, the outside seats of the double deck cars, and the platform "places" of the single deck cars taking the place of the open car. The European practice of restricting the inside load of the car to the number of passengers who can be seated, is in part responsible for the large platform in the rear, already mentioned. Some of the platforms are 6 feet long, allowing standing room for 9 persons. Until quite recently the great majority of European cars have been of the 4-wheel type, 18 or 20 feet long in the body, with a seating capacity for 24 people, the shortness of the car giving the platforms an appearance of disproportion and clumsiness. In Germany the panels are sometimes made of sheet iron, but wood is largely in use. The lumber is to a considerable extent imported from America. The interior finish is, as a rule, not equal to that of the American street railway cars. Although Europe has its own car shops, and is now building more street railway cars than heretofore, there has been for half a century a steady demand from Europe, and other parts of the world, for American street cars and street railway trucks.

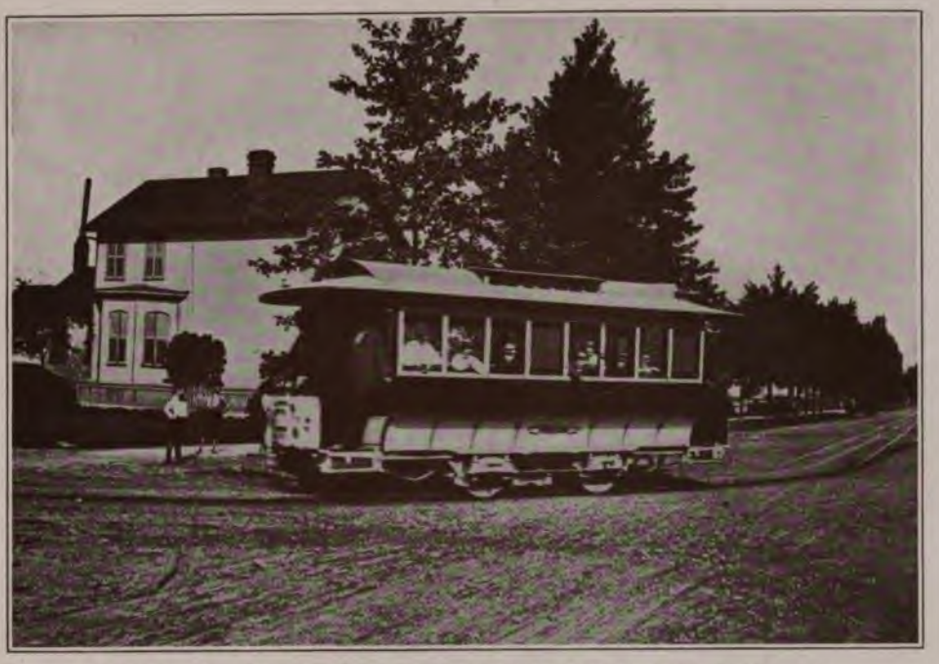
## III.

### ELEVATED RAILWAY CARS AND PRACTICE.

While the cars of all the elevated railway systems in the country are included in Table 95, it is not easy to determine the exact number that should be considered as exclusively designed and employed for elevated service. In Boston and Brooklyn, for example, elevated and surface railways are so connected as to make it difficult to segregate the figures accurately, as many of the cars are run on both surface and elevated tracks. In Brooklyn the situation is complicated by the fact that the Long Island Railroad connects with the Brooklyn Rapid Transit system soon after entering the city, so that a great many of the steam railway cars, operating over regular sections of road, become to all intents and purposes elevated cars, which can be handled either by steam or electricity. None of the statistics of the Long Island system, however, have been included in this report. This interdependence of the surface and elevated systems lessens the number of elevated cars proper. The Boston Elevated system, which reported a total of 3,612 cars, had, apparently, but a year later, only 156 elevated motor cars, the total number being very much the same as that for the census year 1902. On the other hand in the following year the Brooklyn Rapid Transit system, with practically the same number of cars as the Boston Elevated system, and with almost exactly the same number of cars as in 1902, reported 781 of the distinctly elevated type. The details are clearer when one comes to the statistics of the New York system, where the Manhattan Elevated reported a total of 1,290 passenger cars. In Illinois the city of Chicago comprises several elevated systems operating under separate managements, or at least under distinctive designations, and these reported as follows: Metropolitan West Side Elevated, 361 cars; South Side Elevated, 212; Northwestern Elevated, 203; and Lake Street Elevated, 141, making a total of 917 cars, of which all but 15 were passenger cars. The figures for the four great elevated systems of New York, Chicago, Boston, and Brooklyn would, therefore, appear to have, with fair approximation, a total of 3,144 cars of the specifically elevated type proper, but, as already pointed out, this would not by any means include the cars actually plying over elevated tracks.

The cars of the elevated street railways proper are necessarily different in many respects from those provided for surface traction, and this is true, although the methods of operation may be practically the same. There is obviously no necessity of employing an underrunning trolley conduit system with electric traction on an elevated structure, and the choice is left between the overhead trolley and the third rail. For standard elevated railway work in the United States the third rail has been universally adopted, although it may still be considered an open question whether in the long run resort may not be made in some instances to the overhead wire. The winter experience in such cities as Chicago and New York, when traffic has been interrupted by the formation of sleet on the third rail and the occasional accidents from third-rail contact and short circuits, have indicated some of the difficulties attending this method of operation.

The Manhattan Elevated road, operated by electricity, may be taken as an example of elevated railway operation and the cars of this system studied in detail. The company had at the end of 1902, 1,268 closed cars and 22 open cars, and was then adding more open cars for summer use. The practice of the Manhattan Company has been to operate these cars in 6-car trains, employing the multiple unit system. The motor cars have a length of body over the end plates of 47 feet 1 inch, and an extra width over the eaves of 8 feet 9.5 inches with a height of car from the top of the rail to the top of the dome of 12 feet 10.5 inches. The cars are electrically lighted and heated and have longitudinal benches with central cross benches. The motorman's



PRIMITIVE TYPE OF UNDER-CAR TROLLEY OR CONDUIT CONTACT, CLEVELAND, OHIO.

INTERIOR OF A "SEMICONVERTIBLE" CAR.

cab was designed by the company's engineer. When used as a cab it is cut off from the rest of the car by means of a glass door, and a roomy, box-like inclosure is thus formed in which the motorman can sit undisturbed and secure an unobstructed view of the track in front of him. When the compartment is not needed for motive purposes the motorman's seat is turned down, the door is folded back so as to protect the controlling apparatus, and a compartment is provided with seats for two passengers. A compartment is placed at both ends of the car so that either end can be occupied by the motorman.

The cars are built of wood, the underframe consisting of long-leaf yellow pine and white oak. Iron rods are used for strengthening the frame, and the roof of the car is supported by five principal car lines made up of 1.5-inch wrought iron bars, forged to the shape of the roof, and sandwiched between two white ash car lines bolted together. The motor and platform are supported by rolled open-hearth steel I-beams and channel beams. The trucks are of the swing bolster type with a 6-foot wheel base, the frame being rectangular and built up of angle iron. The bolsters are open-hearth steel plates and the pedestals for the journal boxes are of cast steel, with equalizing bars of steel 1 by 6 inches in section. The journal boxes are of malleable iron with brasses of phosphor-bronze lined with babbitt. The weight of a motor car with equipment complete is 51,800 pounds and the motor trucks complete with gears, but without motors, weigh 10,100 pounds. Each motor complete with gears weighs 4,420 pounds. The trailer trucks weigh 7,000 pounds each. Each motor car is equipped with two motors of 125 horsepower, both of which are mounted on the same truck, and all the motors of the train are manipulated together by means of the multiple unit control system, which is discussed on page 200 of the following section. The cars are lighted by 25 lamps of 16 candlepower each, set in the sides and ceiling, with 5 additional lamps at each end of the car for headlight, markers, and cab lights.

The cars are heated electrically, the heaters being in three circuits. Each heater has exactly similar coils and each circuit takes approximately 8 amperes of current, so that in very cold weather 24 amperes of current can be used to heat each car. The three circuits are numbered, and during the winter signals are posted at the terminals of the road under the direction of the superintendent telling the conductors what heating switches to throw in. These switches of the break-lever order are mounted in a sheet-iron box at one end of the car, the lighting switches being similarly mounted at the other end. The cars are equipped with the automatic air brake and the engineer's valve operated by a separate motor compressor under each car, which cuts in and compresses whenever the pressure in the main reservoir drops below a predetermined amount.

Open cars have been introduced on the Manhattan system since electricity was adopted, the annoyance from smoke and ashes making their employment impossible so long as steam was used. They are 47 feet 1 inch in length and 8 feet 6 inches wide over the side sills. All the seats, with the exception of the end one, have reversible backs, and all the doors of the car at the side are opened at once by a lever operating from the end platform. In this manner a more expeditious loading and somewhat quicker emptying of the cars is obtained, as contrasted with the slower results due to the use of one door only at each end of the car, or as compared even with the cars on the Brooklyn Bridge, where there are large doors also at the center of the car. The total weight of the open car is 29,400 pounds.

The question of fire on elevated street railway cars has always been a serious one, owing to the great difficulty experienced by passengers in leaving the cars in case of accident, and the difficulty in reaching the tracks with fire extinguishing apparatus. Serious efforts have recently been made to improve the fireproof qualities of the cars. On the Manhattan Elevated the bottoms of the cars have been covered with asbestos sheeting, and asbestos cloth tape 3 inches wide has been wrapped about the cables. The motor ends of the car have been incased in sheet iron and covered with asbestos. The New England Insurance Exchange and other insurance bodies have shown a tendency to insist that wires shall be incased in metal tubes in all electric cars, thus making the wiring uniform in method with house wiring. The Manhattan Elevated Company has adopted a type of car fuse which produces little noise or smoke. It consists of thin copper ribbon with a hole drilled in the center. All the copper that is burned away in case the fuse "blows" is practically vaporized. The good results obtained are due to the large radiating surface in comparison with the small amount of metal in the fuse.

The frequent and disastrous fires occurring recently in the underground railroad of Paris, due to short circuit on the cars and the subsequent creation of a large volume of suffocating smoke, have further directed attention to the importance of thoroughly fireproof and insulated cars on underground roads, of which the system in New York city, with the possible exception of the Boston subway, is the first example in America. The first cars adopted for the Rapid Transit Underground in New York city consist largely of wood, and every effort has been made to insure their fireproof qualities. The first floor is of maple, as that wood is slow to burn and does not carry flame; this rests on the sills. On top is a layer of one-eighth inch fine felting asbestos protection and then another floor of maple. All the timbers and the sides are covered one-fourth of an inch with asbestos board before any of the sheathing

below the floor is laid. There are four sheets of quarter-inch steel above the motors, and the motor wires and control wires are all carried in asbestos conduits. On each cable are layers of asbestos insulation, and the sides of the cars from the floors to the windows are covered with copper sheets. The lighting and heating circuits are carried in asbestos conduits, and all the wooden frame is painted with fireproof paint. An all-steel car has also been developed by the company and has proved so satisfactory that it is stated all future cars put in the subway will be of this type. Although slightly heavier, they have the advantage of absolute noncombustibility.

## IV.

### MOTOR AND CONTROLLER EQUIPMENT.

Of the 65,949 street railway cars of all kinds reported by roads operating entirely or in part by electric power, 50,699, or 76.9 per cent, were provided with electrical equipment. The leading states reporting cars with this class of equipment were: New York, 10,222; Massachusetts, 7,801; Pennsylvania, 6,450; Illinois, 3,315; and Ohio, 3,188.

The variations in the proportion of the total number of cars reported in each state as provided with electrical equipment is due to the use on some roads of trailers, which have no equipment of their own.

*Early motors.*—At the time that motors began to be employed in street railway operation, much still remained to be done to perfect the motor itself. The idea of magnetic permeability and the measurements connected with it were very imperfectly grasped. Proper lamination of the armature cores to prevent heating was little understood or practiced, ventilation of the motor had not been solved, and iron or steel castings of the proper magnetic permeability were not obtainable.

The matter of gearing required much thought and experiment. By improvements in design and construction, it was found possible to lessen the speed at which the armature of the motor ran, thus doing away with the necessity for one set of gearing between the armature and the car axle. One commutator on the motor was found to give trouble enough without resorting to the use of two, and it was found desirable to discard all methods of gearing except spur gearing, which could be inclosed in a gear case. In many of the earlier motor constructions other methods of driving were tried, including friction pulleys, ropes and belting, worm gearing, connecting rods, bevel gearing, and sprocket chains, but these have all been abandoned and spur gearing is now in general use.

The first machines of the prevalent modern type were those which were built ironclad, or so incased as to protect them from moisture and dirt, with single reduction spur gearing construction. These machines were generally from 20 to 25 horsepower. They were different from the motors used for other purposes, and from the early generating dynamos which were sometimes forced into service as motors on street railways. In some of the first attempts to operate street railways on the "series" system a form of arc light dynamo was employed, and in some of the first attempts to operate on what is known as the "multiple" or "parallel" system low-voltage dynamos used for incandescent lighting were tried. In neither case was the machine properly adapted to such work. The early employment of the double reduction gearing between the armature and the car axle was necessitated largely by this use of electric lighting dynamos with their bipolar form of field construction. With the introduction of the multipolar machine came a reduction in armature speed, which made it possible to dispense with one set of gears.

Among the early problems in connection with the equipment of cars with electric motors was the proper location of the motor in the car. It was shifted from the floor of the car to the front platform and then back to the car, and was finally placed underneath the car. Many earlier cars had the motor hung under the car body with one end suspended by springs and the other hung on the car axle. This was but a temporary stage in which the old horse cars were remodeled to meet the needs of electric traction. The car axle in such cases was lengthened to make room for the motor, and the floor of the car was strengthened to carry the additional weight imposed upon it. A serious objection to this plan, however, was found in the difficulty of getting at the motor for inspection and repairs.

It is the modern practice to attach the motor to the truck rather than to the car body and to treat the car body as one unit and the motor and truck as another. This not only permits the attachment and detachment of open and closed car bodies, but it makes the mounting, inspection, and repair operations much easier, besides adding to the comfort of the car.

The prevailing method at present is to mount the wheels and axles in a frame carrying two crossbars for the suspension of the motors, and heavy springs which receive the weight of the car body and deaden the jolt or oscillation. For some years electric cars of moderate length were equipped with one truck for the whole car, carrying the two motors, and such trucks with the motors geared to them are still in very general use on medium-sized or short cars. But, as the car body has grown in length, one truck has proved insufficient to support the car and carry the motor equipment. The standard practice now is to use two trucks well separated from each other. For high-speed work and sometimes for city service, as will be described later, four motors per car are used, one geared to each axle. Where two motors per car are used, both are sometimes placed on one truck, though the practice differs. In some cities max

HEAVIEST AMERICAN STREET CARS, ON STREETS OF CHICAGO.

HEAVY CAR OF CHICAGO CITY RAILWAY SYSTEM.

imum traction trucks are used to keep the car body low. These trucks are so designed that one axle of the 4-wheel truck is equipped with larger wheels than the other. This axle carries nearly one-half of the weight of the car and has a single reduction motor geared to it. The other axle has no motor geared to it, and carries only weight enough to keep the wheels securely on the track.

*Modern motors.*—The motors in general use at the present time for street railway work are of the 4-pole, series-wound, ironclad type. One of the best known, which may be taken as a typical example, has a weight of 1,455 pounds for a rated capacity of 25 horsepower, with a weight of 715 pounds upon the axles to which it is attached. The advances shown in the construction of this machine may be inferred from the fact that a corresponding motor of the same capacity formerly weighed 2,395 pounds, while one of 15 horsepower weighed 1,735 pounds. It is completely incased, so as to be protected against dust and moisture. It is light enough to be lowered into the repair pit in the car barn, and the armature is so short that it can be taken up through the floor of the car by means of a trapdoor. It is hung from the truck in two ways. In the method known as "nose suspension" one end of the motor rests on the axle through its bearings and the other is hung by a crossbar and springs from the truck. In the other, or side bar suspension, there is a side frame resting on springs, carrying the motor by two lugs, one on either side, so placed that the motor is suspended in line with its center of gravity. The armature of this 4-pole machine is made both in the drum form and in the Gramme ring type. Two of the poles are used in connection with two field coils, the other two poles being arranged in a manner known as "consequent." The two field coils are wound on forms and wrapped with waterproof and fireproof material. All the bearings are lined with Babbitt metal and are freely lubricated. The speed reduction is 4.78 between the armature shaft and the car axle—that is, nearly five to one. On these motors, as on all other street railway motors, carbon brushes are used to bear upon the commutator of the armature, and connections between the commutator bars and the armature coils are made by short pieces of flexible cable, joined to the bars by solid cups, so constructed that breakage by vibrations or jolting is avoided.

*Controllers.*—In order that the action of the motor may be governed and varied, the coil terminals of the motor are brought out by cables to a "controller," or series of spring contacts, pressed against metal surfaces grouped on a vertical cylinder. These surfaces are so arranged and shaped that rotation of the cylinder produces the required combination for operating the two or more motors singly or together, by which the speed of the car is raised or lowered, and for reversing the direction of the car. As these controllers are on the platforms and exposed more or less to the weather, as well as to possible contact with passengers, the mechanism is inclosed in stout metallic casing, which can be easily removed for purposes of inspection. The top of the controller case consists of a brass cover, out of which projects the spindle of the cylinder, which connects with the controller handle. A second handle operates a second and smaller cylinder switch, used for reversing. There is a dial plate on the face of the controller which shows the position of the two cylinders.

The controller in general use is known as the "series parallel" type from the fact that the various degrees of speed and the amount of current consumed are regulated by connecting the motors in series and in parallel, in combination with the resistance which is carried under the car. This resistance consists either of a series of cast-iron girds or of sheet-iron ribbons, generally insulated with mica, the ends of which are brought out to the controllers at either end of the car.

In the actual operation of the car the electric current passes from the trolley pole to the resistance, which is arranged so that it may be cut in or out, and thence to the motors, arranged either in series or in multiple, and thence to the wheels and the track, if the track, as is usually the case, constitutes the return circuit. If this is not the case, and double overhead wires are used, the current returns through a second trolley pole to the return circuit wire. With the controller handle in the first position, as indicated on the dial, the current passes through the resistance, losing in heat a certain portion of the normal pressure or line voltage of 550 volts. With pressure thus reduced the current reaches the motors, which are connected in series—that is, in tandem—and each gets half of the current and starts up slowly. The motorman, moving his lever across the face of the controller dial, cuts out the resistance by a new adjustment of the contacts of the controller. The motors are left in series, taking between them the full pressure of 550 volts. Each is thus getting 275 volts and moving at an appreciably faster rate of speed. At the next step the resistance is again cut in, but the motors, instead of being in tandem on the circuit, are now grouped in multiple or parallel. They both receive the same portion of current from the line and the same voltage, say, 400 volts. Under this voltage the armatures of the motors again revolve faster than before, with an increase in the speed of the car. The last or final position is "full speed ahead," the resistance being entirely cut out and the motors being left in parallel to receive full current and pressure from the line. The number of sections of a controller vary with the grouping of the motors and the division of the resistance. The contacts within the controller are connected with small electro-magnetic coils of wire, which serve as blow-outs for any sparking that occurs when

the circuit connections are brought into new groupings. Other safety devices employed are the fuse and the circuit breaker.

The fuse is a short piece of wire of German silver or flat copper of such size and capacity that it will readily be melted by a current strong enough to damage the motor, and the fuse, having a predetermined melting or fusing point, blows as soon as the current reaches the danger point. The melting of the fuse opens the circuit and cuts the current off from the motor. Sometimes the blowing of the fuse has been accompanied by fire, due to the creation of a heavy spark or arc at the points where the fuse metal is attached, but fuse boxes have been secured which are as nearly fireproof as possible, and the fuses themselves are inclosed in cartridge-like cases so as to stifle both fire and noise. The fuse box is usually placed under the car.

In place of or sometimes in addition to the fuse the cars are protected by what are known as circuit breakers, which perform practically the same function. The circuit breaker is a form of switch controlled by an electro-magnet and is usually placed under the roof of the car platform, where it is readily accessible. It is set to operate automatically at a higher current value than the fuse for the reason that the circuit breaker acts instantaneously, whereas there is an appreciable time required to heat and deflagrate the fuse. The circuit breaker opens the instant the current has reached the point at which it would become dangerous to the motor, and is especially serviceable in protecting the motor against sudden and heavy charges of current, while its use protects the motors against currents of lesser degree which would do them injury if allowed to continue for any length of time.

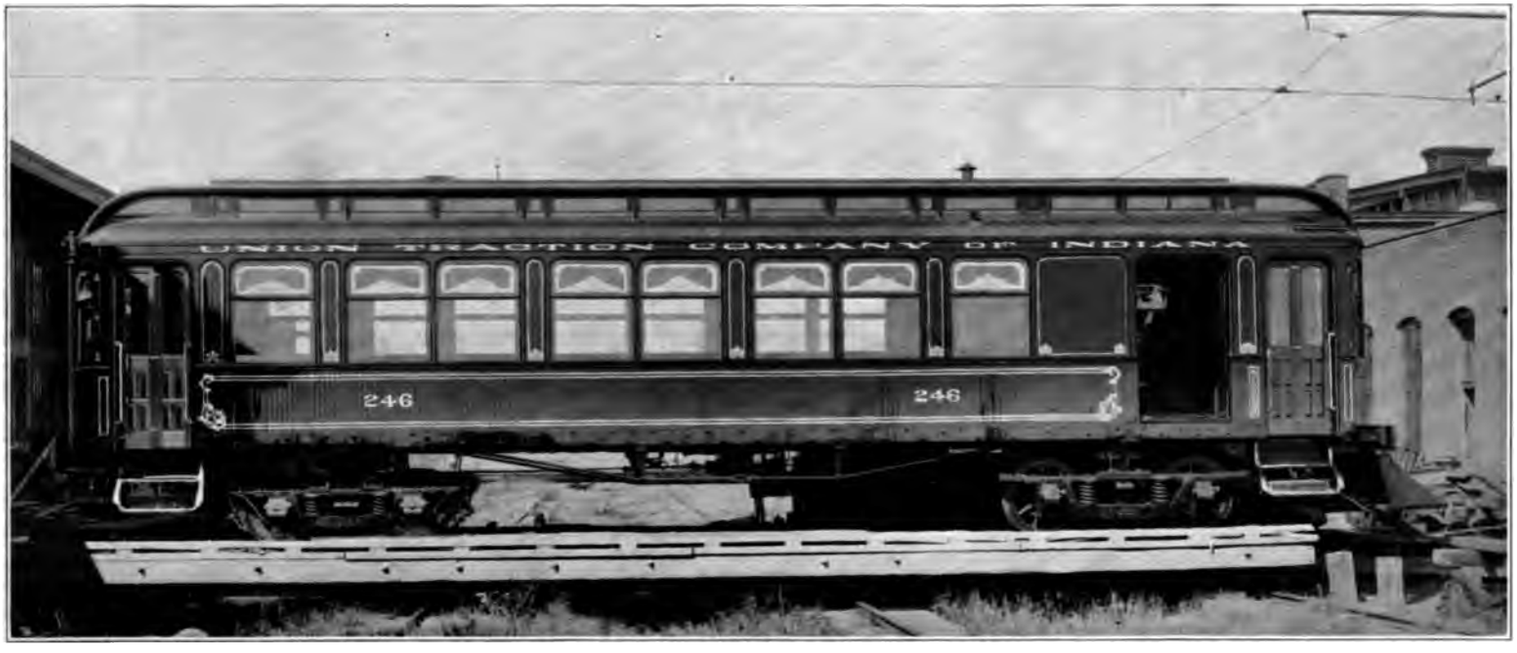
*Number of motors per car.*—It has thus far been assumed that two motors were sufficient to propel a street car. On interurban roads, however, and to some extent on elevated roads, a car with four motors has come into use, and the number of such cars is increasing. A number of comparative tests with 4-motor and 2-motor cars were made in 1901 by the Boston Elevated Railway. From the results obtained it did not consider the 4-motor as desirable as the 2-motor cars, all the conditions of service being taken into account. The company equipped one of its standard 25-foot box cars with four motors, which were so connected that each pair was brought in multiple to the controller. A car and truck were similarly equipped with two motors of the same kind. It was found that the 4-motor car took considerably more energy than the 2-motor car to cover the same distance. In one run the energy consumed, as measured by wattmeter in each car, was about 50 per cent greater, although the weight of the 4-motor car was only about 18 per cent greater than that of the 2-motor car. These tests were repeated, with the same motorman handling both cars instead of different men, so as to obtain the same personal equation. The same general results were obtained. The 4-motor car could run at higher speed and carry more load than the 2-motor car. This would mean quicker running time if the tracks were cleared of the slower moving cars. But in view of the great number of cars operated, and the fact that the company was making as fast time as was safe or allowable, except in some places in the suburbs, the technical officials of the road concluded that the greater speed and carrying power of the 4-motor car would be purchased at too high a cost.

In one thing the 4-motor cars excelled, and that was in the traction. The entire weight of the car was available for adhesion and the drawbar pull was the maximum that could be obtained on any given rail. Traction on the 2-motor car, however, was improved by the use of maximum-traction trucks, in which a large proportion of the weight of the car is carried on the motor axles and very little on the trailer axles, and also by hanging the motors outside the axles instead of between them. This increased the percentage in weight available for traction from 66 to 74 per cent, and reduced to some extent the advantages of 4-motor trucks. An alternative to the use of large, long, and heavy 4-motor cars is to join the cars in trains. This practice is more feasible on an elevated road than on the surface, although there are some instances of the multiple train unit method on the surface lines.

*Multiple unit system.*—The advantage claimed for the operation of cars in trains of three and four cars, as in the Chicago cable system, rather than singly, is that when the headway is short there is an opportunity to operate more cars on a given length of track without interference. If a four-car train were cut up into four individual units, each traveling within the one minute headway, which prevails frequently for four-car trains, it would mean that the separate individual cars must be operated four to the minute, or at fifteen seconds headway. This is practically what is done on Broadway, New York city, with the electric cars, and at times the headway is even shorter than that. The success in the crowded city streets of Chicago of the four-car train has probably been due to the fact that, as a general thing, the streets in Chicago are unusually wide and straight, so that the other vehicular traffic is not so frequently congested. Whether trains take longer to load and unload than single cars is a disputed question.

Following the example of the cable railways, the elevated railroads of Chicago introduced the multiple unit plan of electric railway operation. This plan involved a different form of controlling equipment from that in use on single cars, so as to make it possible for a train of several cars to operate as a unit. The number of cars in the train might be varied throughout the day, according to the requirements of the traffic, and yet it was necessary to provide for the same speed, and the same quickness of stopping and starting for the largest train

INTERURBAN PASSENGER AND EXPRESS CAR, WILKESBARRE AND HAZLETON RAILWAY.




INTERURBAN CAR IN USE ON UNION TRACTION SYSTEM OF INDIANA.

as for the single car. In the spring of 1898 the South Side Elevated Railroad Company, of Chicago, was equipped for regular service with the first electric multiple unit train ever run, carrying out the ideas and inventions of Mr. Frank J. Sprague. Multiple unit trains of from two to six cars had been experimented with previously at Schenectady, N. Y., and a five-car train had also been tried on the tracks of the Metropolitan Elevated Railroad in Chicago. Since that time the system has been adopted in one form or another on the elevated railroads of New York city, of Brooklyn, and of Boston. Many hundred multiple unit motor cars and "train-line" cars are now in daily use on these systems. A requirement of the multiple unit system is an equipment which will allow the cars to be run in single units from either end of the car, or in any combination from two cars upwards, without regard to the sequence of cars, and with control at will from either end of any car in the combination. This system must be distinguished from the distributed motor control, in which the motors of each car would be handled by the controller of that car without any regard to uniformity and simultaneity of action. While a train could be composed of such motor cars there could be no assurance that the motors would work in harmony. The multiple unit idea involves the contrary principle of distributed motors under a train, subject to a common control, so that all the motors can be controlled simultaneously from a distance, and thus the united action of more motors than could possibly be concentrated on a single car can be secured, with resulting increase of traction and a scientific distribution of various strains. These motor cars, as well as the other cars without motors of their own, if provided with controlling "train lines," can be made up for a train in any combination, without regard to the number of cars or their order. Cars when thus collected into a train can be easily manipulated or controlled from one or more points in the train, usually the head of the train, by the moving of the master switch.

To illustrate the working of the multiple unit system one type of equipment of the Manhattan elevated line in New York city may be considered. The controller consists of two parts: First, a number of electrically operated switches, or contactors, on each car, which constitute the series parallel controller for the motors and vary the starting resistance in the circuit; second, two master controllers on each motor car, one located at either end of the car, either of which serves to control the contactors on that car and all others in the same train. A cable connected to the master controller and to the contactors runs the entire length of the train, and with suitable couplers makes necessary connections between the cars. The current does not pass through the master controller, nor, usually, through the train cable, these parts carrying only the currents which operate the contactors. Each motor car collects its own motor current from the third rail and controls this current in its own contactors. The movement of any master controller sends current to the contactors, since these are wired in parallel to the train cable, thus causing simultaneous movements of all contactors in the train. The action of the motor controllers, or contactors, of all cars at the same time with the movement of the master controller handle insures similar resistance connections and motor combinations on all the cars. The operator knows by the position of the master controller handle the exact position of the contactors on all of the cars and the rate of movement of the contactors. Consequently, the amount of current taken by all of the motors is under his immediate control, just as it is with ordinary hand operated controllers. The motorman is able at will in an emergency to utilize immediately the full power of the motors in either direction.

In case the supply of power to the train is momentarily interrupted for any reason, the contactors all open the motor circuits, but the motor and resistance connections are instantly reset upon the restoration of power, provided the master controller position is unchanged. If the train breaks in two, the current is automatically and instantly cut off from the motors on that part of the train which is not under the control of the motorman, while his ability to control the front part of the train is not affected.

When the master controller is thrown off, both line and ground connections are cut off from the operating coils of the contactors, and none of the train wires, or any of the wires in the train line cable are "alive." To reverse the motors, the master controller is provided with a separate reversing handle, and a mechanical interlocking device prevents this reversing handle from being thrown unless the main handle is in the "off" position. A movement of this reverse handle either forward or back makes connections which throw an electrically operated reverse switch either "forward" or "reverse." This main reversing switch is electrically interlocked, so that it can not be thrown when power is "on." The operating circuit is so arranged that, unless the reverse switch on any car is thrown in the direction indicated by the master controller reverse handle in use, it will be impossible to operate the contactors so as to get any current in the motors on that particular car. A cut-out switch is provided on each car, so that in an emergency all of the contactors on that car may be disconnected from the control circuit. The control operating current at 550-volt line potential is about 2.5 amperes per car for an equipment of two 125-horsepower motors, and the total weight of the control apparatus for this equipment is approximately 2,200 pounds.

The master controller is similar to the ordinary street car controller in method of operation and appearance, although of considerably smaller dimensions. Separate handles for power and reverse are provided. All cur-

rent for the operation of the several motor controllers passes through the single master controller in use, which takes current directly from the line. A magnetic blow-out is provided, similar to that used on standard street car controllers. An automatic open-circuiting device is provided in the master controller, whereby, in case the motorman releases the master-controller handle in any "on" position, the control circuit to the motor controllers is instantly opened on auxiliary contacts. This result is obtained by mounting the operating mechanism for the auxiliary safety device loosely on the main shaft and providing it with a spring, which, when released, is returned to the "off" position without necessitating the movement of the entire cylinder or handle; thus the device is entirely separate and distinct in its action from the main cylinder.

The motor controller for each car consists of 13 electrically operated switches, called contactors, and an electrically operated reversing switch, which reverses the armature leads of the motors. Each contactor consists of a movable arm, carrying a finger, which makes contact with a fixed terminal finger, and a coil supplied with current from the master controller for moving the arm. The contactor is so designed that the motor circuit is closed only when current is flowing through the coil. Gravity, combined with spring action of the finger, causes the contactor to open as soon as the master controller circuit is interrupted. The contactor has an efficient and powerful magnetic blow-out. The different contactors are practically identical, and the few parts which are subject to burning and wear are so constructed as to be readily replaced.

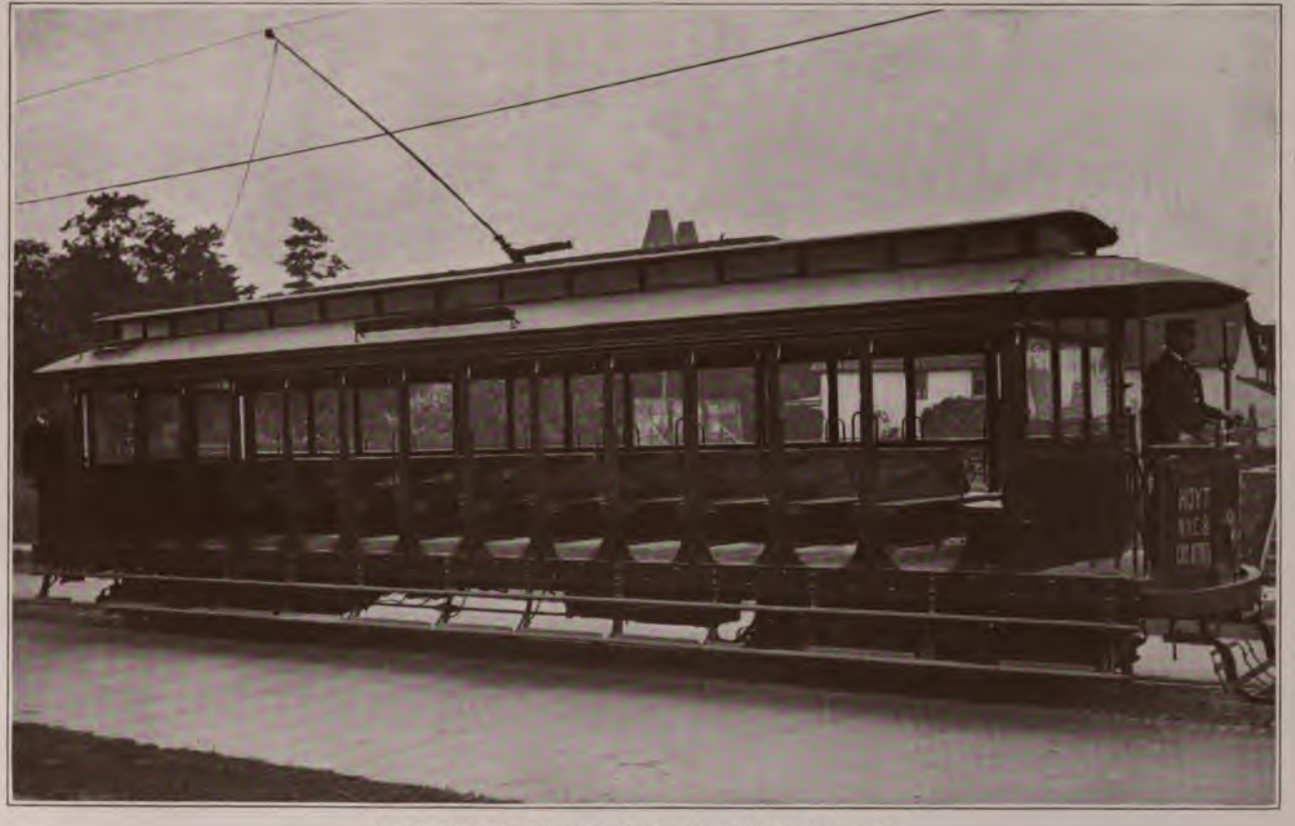
The general design of the motor reversing switch or reverser is somewhat similar to the ordinary cylindrical reversing switch, with the addition of the electro-magnets which turn it to either the forward or the reverse position. The operating coils are similar to the ones used on the contactors.

The coupling between the cars consists of sockets and a short "jumper" cable, with a plug at either end. The sockets on the car contain a number of insulated metallic contacts, which are the terminals of the wires in the train line. This socket is shaped to receive the plug on the end of the cable. The plug contains the necessary insulated contacts to make the required connections, and is so shaped that it can be inserted into the socket in only one way, thus insuring the same series of connections each time two cars are coupled together. The couplers are provided with spring catches, which maintain contact under normal conditions, but permit them to be released immediately in case the train breaks in two. A special cable made up of different colored, individual, insulated wires is used whenever possible to make control circuit connections between the various pieces of apparatus, a similar cable being used for the connection between the coupler plugs.

An important differentiation in some respects from the apparatus thus described has been installed on the Brooklyn Rapid Transit Company's elevated system. The supply of current through the third rail, and that supplied through the connections of the low-voltage control circuits are the only sources of power which have to be considered in train operation. In this apparatus compressed air is used in connection with a set of storage batteries. Only seven battery wires are required for the train line or cable, so that the cable carries a pressure of only 14 volts. This dispenses with high-voltage wires on the train cars and high-voltage coupling everywhere on the system. The master controller and the air-brake operating valve are mounted on the inside end panel of the motorman's cab. The master controller handle is fitted with a spring return which makes it a "dead man's handle," it being so constructed that should the motorman remove his hand at any time from the controller handle, the brakes are at once applied automatically unless the reversing handle has first been turned to the center position. By similar mechanism, if the brakes are applied while the current is still on, the current is automatically cut off. This is accomplished when setting the brakes by means of a connection between the spring return handle and the air brake system, while the release of brakes is effected by a connection between the air brake system and a small air cylinder, the piston of which opens the storage battery circuit.

To insure uninterrupted service from the storage battery used in operating the electro-pneumatic switch, there are two sets of batteries of seven cells each, which, like every other part of the system, except the master controller and the battery switches, are carried beneath the car floor. The controller itself comprises 13 unit switches, arranged radially in the turret, and protected by a sliding cylindrical case. These individual switches are operated by pneumatic pistons controlled by electro-pneumatic valves, operating against a spring pressure of 70 pounds, so that a very decided motion is given to the circuit breaker. The 13 switches have a common magnetic blow-out coil, located at their center, of which the spider arms of the individual switches constitute the pole piece. The danger of the welding or sticking of the contact surfaces is avoided by the pressure of air against a spring. Moreover, the switch finger levers are made flexible, so that when drawn up by pneumatic pressure and released by spring pressure they produce a slight rubbing movement of the contact surface and help to prevent any possible welding. The reverse switch is of the usual type, with copper contacts operated by two air cylinders controlled by electro-pneumatic valves running from the reverse cylinder of the master controller. This reverse switch is placed as near the motor truck as possible to reduce the length of the wire, and beside it is the limit switch governing the speed. The total weight of the complete apparatus, inclusive of the battery, is over 1,700 pounds. All

INTERURBAN CAR ON CLEVELAND, ELYRIA AND WESTERN RAILWAY.



LONG TYPE OF OPEN CAR, IN USE AT BUFFALO, NEW YORK.

the circuits are run in electro-bestos conduits. The system has been constructed with the idea of securing absolute and instantaneous control, with the minimum liability to collision, fire, or other casualty. The vital importance of the car controllers justifies the immense amount of money and energy which has been expended in devising the modern systems. Brief reference to larger motors will be made in the chapter on interurban railway equipment.

## V.

### THE OVERHEAD TROLLEY CONTACT.

The devices for conducting the current from overhead wires into the cars are details which could not at any stage of the development be considered independently, but had to be developed in relation to the methods of suspending overhead wires and of employing the overhead frogs and switches along which the contacting device has to travel. Some of the earlier trolley devices traveled along the top of the wire, but this was soon found to be an inconvenient and inexpedient method. The overhead devices for making a side contact were also found impracticable, as, for example, those used on the electric road at Offenbach, Germany, where a split tube was employed, at the side of the road, the contact device sliding along inside the tube.

Instances of the early style of overrunning trolley in this country and Canada were due to Mr. Van Depoele, and one or two of them were in use until recent years; for example, at St. Catherines, Canada, where one form employed was exactly like the underrunning trolley, but had a heavy weight attached to a cord to steady it in position on the wire. Such overrunning contact devices were connected with the cars by flexible cords, and when cars passed the cords were exchanged or one of them was lifted from the wire by the car conductor by means of a long wooden fork, kept on the car for that purpose. As soon as resort was had to the trolley wheel pressing upward under the wire (the underrunning contact), it became necessary to employ a pole extending upward from the car roof to hold the wheel firmly in position, and in this manner, through a variety of forms of pole, base, and swiveling mechanism, was evolved the modern trolley seen on top of all such cars in the United States. The trolley pole now used is of tubular steel. The trolley wheels are usually of fairly hard copper. The pressure of the trolley wheel against the contact wire is from 16 to 20 pounds, depending upon the style of the wheel; and the wheel itself, which is from 4½ to 6 inches in diameter, weighs from 3 to 4½ pounds. The average life of the lighter wheel is 5,000 to 8,000 miles, the wheel taking up the wear rather than the wire; but the 6-inch wheels have been known to endure for from 12,000 to 15,000 miles. Precautions are now taken to prevent the pole swinging around and doing damage to the overhead construction when the trolley wheel by accident leaves the wire. For this purpose devices known as trolley retrievers and trolley catchers are employed. The retriever is so constructed that it pulls the trolley pole down clear of all the wires as soon as the wheel leaves the trolley wire. It is usual to have a rope, attached to the trolley pole, by means of which the conductor or motorman can adjust the trolley pole from time to time as may be required.

## VI.

### BRAKES.

The statistics regarding the extent to which different kinds of brakes have been installed on street railway cars, included in Table 95, show that 63,690 cars, or 95.4 per cent of the aggregate number, were reported as equipped with hand brakes, and 7,905, or 11.8 per cent, with air brakes, including those in which the air pumps are driven by electric motors, and 5,148, or 7.7 per cent, with other varieties of mechanical brakes. It is of course evident from these figures that many cars are provided with brakes of more than one kind.

The detailed statistics show a very general distribution of hand braked cars. In New York state, for example, all but 5 of the 96 companies reported that they had at least some cars equipped with hand brakes. Out of a total of 14,040 cars reported for the state 13,805 were equipped with hand brakes. The same conditions prevailed in Pennsylvania where 6,972 out of 7,058 cars had hand brakes; in Massachusetts where 8,274 out of 8,310; in Illinois where 5,790 out of 7,778; and in California where 2,016 out of 2,056 cars were reported with hand brakes.

The air braked cars were more generally distributed than might perhaps be expected, cars of this character being reported from all the states except Arizona, Arkansas, District of Columbia, Idaho, Kansas, Mississippi, Nebraska, New Mexico, and South Dakota. The great majority of these cars, however, were reported from a few of the principal states—1,529 from Illinois, 1,207 from Massachusetts, 2,070 from New York, 445 from Ohio, and 1,064 from Pennsylvania. Of the number in these states, again the majority were reported by the larger city systems, as, for example, New York city, Brooklyn, Chicago, Boston, and Philadelphia. The Metropolitan or Interurban system in New York city reported every one of its cars as hand braked, so that the large figures in that area are in reality those of the Manhattan Elevated, with 1,331 cars.

In all of the earlier cars the brake applied to the wheels was invariably that operated by a hand lever. The brake handle was connected by a chain and a system of levers with brake "shoes" on the wheels, the handle usually moving 25 inches for a quarter-inch movement of the shoes, so that with 2 inches slack in the chain the handle would have to make nearly two revolutions, in addition to the revolutions required for taking up the slack, before the shoe was brought against the face

of the wheel. This brake had the advantage of putting little strain upon the driver and the horses, but owing to its rather slow operation it resulted in "flatting" the wheels, which was a source of great annoyance to the company and discomfort to the passengers. Some brakes, called track brakes, are operated by being pressed against the rail. The introduction of what are generally known as mechanical brakes has lessened the amount of "skidding" and the wear and tear of the wheels, and has given the driver a more instant control of his car. Indeed, it would probably be impossible to operate the heavy cars of modern type without the powerful mechanical brakes which are now employed. It is estimated that with modern braking methods brake shoes should last about 5,000 car miles, and the usual chilled iron wheels 35,000 car miles, without renewal. An average brake shoe of 21 pounds is allowed to remain in use until the block has had a wear of some 10 or 12 pounds. These are average figures, the actual figures varying greatly in practice. The power from the power brake handle is conveyed to the shoe by a variety of forms of rigging. In one form of momentum friction brake the brake staff, instead of directly transmitting the power necessary to pull the brake shoe up against the wheels, is connected through the brake chain to the drum sleeve of one of the axles. This drum is not keyed to the axle and does not turn with it except when a stop is to be made. When it is desired to stop the car the edge of the drum, which is in the form of a disk, is pressed by a series of levers against a corresponding disk on the inside of the car wheel, a leather washer being placed between the two disks in order to take up the wear. The friction due to the pressure of the drum against the car wheel causes the drum to revolve, thus winding up the chain and setting the brake.

As is shown by the statistics a large number of modern street cars is equipped with air brakes or electric and magnetic brakes. In the city railways in the Eastern states, where short cars have been largely retained on account of narrow and crooked streets, hand brakes are common, while with long or high-speed cars air or other power brakes are almost universal. The supply of air is usually produced by independent motor compressors carried on the individual cars, but in a few cases central compressor plants driven by steam or by electric motors have been installed. Where this is done the car reservoir carries a reserve storage supply of air at 300 pounds pressure and a working supply at from 20 to 50 pounds pressure, the amount depending mainly upon the weight and speed of the car. An average of 500 stops may be made on one charge.

Where the compressor is carried on the car, it is usually driven by an independent motor provided with an automatic switch, which is so acted upon by the air pressure in the reservoir that it throws the motor in and out of operation as the pressure in the reservoir falls and rises. In another type the compressor pump is geared to one of the car axles in such a way that the revolutions of the axle of the moving car supply power to work the pumps. When the reservoir is fully charged the gearing is released and the pump stops acting.

In one system of electro-magnetic braking a circular electro-magnetic brake shoe is rendered magnetic by the current from the motors in such a way that it is drawn powerfully against the face of a disk on the car axle. This brake serves for emergency stops as well as for all service stops, but up to the present time it has not been widely used. Another system of electro-magnetic braking includes a double or split track shoe of novel construction, combined with a powerful electro-magnet. The magnet, when energized by a current from the car motor, acting temporarily as a generator, brakes the car by being strongly attracted to the rails over which the car is passing. Lever connections may also be established between the electro-magnetic brake shoe system and the wheel brake shoes, so that when the track shoes are set the magnetic brakes are also set against the wheels, the effect being so adjusted and graduated that no greater brake pressure can be applied to the wheels than they can withstand without skidding.

The Pittsburg Railways Company has adopted magnetic brakes for open and closed cars, while the United Railroads of San Francisco on combination cars, which operate on the steep grades of that city, employ straight air, wheel, and track brakes.

The subject of brakes has been considered carefully by the authorities in various states and communities, with the object of lessening the number of accidents, which might be avoided if the cars were under better control. The board of railroad commissioners of the state of New York in 1899 authorized a public competitive test of brakes for surface cars. The commission issued a notice of the test to owners of brakes for surface cars, in response to which 26 applications were received, all of which, with one exception, were accepted by the commission.

Elaborate methods of testing were devised, and on each car 14 average speed records were taken—3 at 8 miles per hour, 3 at 12 miles, 3 at 15 miles, 3 at 16 miles, and 2 at 16 miles with sand. It had been the intention to carry the tests to higher speeds, but these did not prove feasible with the motor equipment used. The record of the tests made by the commission constituted an elaborate report. On the basis of the tests the board decided that except in special cases, where the liability to accident is very remote, the ordinary single chain and spindle hand brakes then and still generally used should be replaced by some one of the mechanical or power brakes which were submitted and tested. The board did not recommend any particular brake for any class of service, but left the selection to the judgment of the railroad officials themselves, reserving the right to exercise fully

its power under the law to require of the companies the use of sufficient and safe equipment for the public service.

The tests related not only to the average length of track covered before the stop was effected by each brake at the different rates of speed, and to the skidding of wheels, but also to the reliability and simplicity of the system, the liability of the brakes to act when they should not do so, the ease with which the brake could be operated by an ordinary motorman, and the cost of equipment and maintenance. First in the order of worth was an electric brake. This brake, operated by the trolley current, consisted of a series of magnets with armatures at varying distances, mounted loosely on the same rod, and placed in such a way that the attraction of the armature nearest to the core carried with it the armature next in distance from the core to a point of greater magnetization, and so on, each armature acting upon the next and thus creating a long and powerful pull. The rod upon which these armatures were arranged formed part of the ordinary brake rod, and the brake could be applied to the ordinary spindle hand brake. The movement of the brake handle set the electric brake in operation, but this could be done without interference from the electrical portion of the brake, so that in case of failure or interruption of current the brake could be set by hand. The hand brake being naturally under test at all times when the electric brake was in use, its working condition was insured in case of some failure of current from the trolley line. The device took but 5 amperes of current. With the cars under test this brake made a stop, for all speeds, in an average distance of 58.83 feet. At 16 miles an hour on ordinary track the cars stopped in 72.33 feet in 9.35 seconds, and at a speed of 16 miles an hour with sanded track in 73.08 feet and in 8.92 seconds. The brake which ran closest to this in the tests was the momentum friction brake, the friction device being placed on one of the axles of the car. This brake showed stops at all speeds in an average distance of 66.71 feet. It can not be said, however, that any great weight has been attached to these tests.

Aside from or in addition to the brakes there are other parts of the operating construction which are in universal use. One of these is the gong operated by the pressure of the motorman's foot, and sounding its warning insistently in crowded streets. Another device upon or within the car itself is the safety gate, with which motor cars in some cities have been equipped, as, for example, at Minneapolis and St. Paul, Minn. This gate being under the control of the motorman, is opened promptly when the car comes to a standstill and is closed just before the power is applied for starting. On many open cars are bars which are let down at the same time that the side step is thrown back on either side of the car, so that the car can not be freely entered or left on the side next to the other track. In some closed cars it is the custom to place bars or rails or netting at the open windows to prevent accidents to passengers who might protrude elbows or heads from the apertures at dangerous places, or attempt to use the windows as a means of entrance or exit.

## VII.

### CAR FENDERS.

A conspicuous feature of cable and electric railway work has been the car fender, the use of which has been required by ordinance in a great many cities, but the adoption of which is by no means universally favored among street railway managers. The purpose of the fender placed at the front of the car, or immediately in front of the wheels, is to push aside or catch up and hold in safety persons who might otherwise be run over. A variety of such car fenders have been introduced, some of them exhibiting great ingenuity. Sometimes the fender is held up on the front of the car and can be released by the motorman in case of an emergency, but this is regarded as open to the objection that when the occasion for its use arises the motorman may not have sufficient presence of mind to do what is required of him, and the car may run over the person before the fender can be lowered. A common type is that which is carried in front of the car a few inches above the track, and which, if desired, can be folded up or carried around to the other end of the car for the return trip. Such fenders have more or less the form of a net, being constructed usually of light slats of metal, with a stout outside rim.

It is objected that many of these life guards are just as apt to cause accidents as to prevent them, projecting, as they do, several feet in front of the car. This objection is sometimes met by arranging the fender so that it collapses when not in use, and is drawn back under the car, whence it is released in case of danger. Few or none of these more elaborate devices are in practical use. The results of experience would seem to show that in most cases where the speed of the car is slightly reduced the fender will pick up without harm or injury persons who, without the fender, would have gone under the car. Even when the car is still under rapid headway, the injury from the fender is not apt to be as great as the injury from a car without such equipment. On Broadway, in New York city, the cars are equipped with fenders carried under the platform, which are technically known as wheel guards. The objection to the projecting fender in such thoroughfares is that because of the density of traffic their general use would add seriously to the obstruction of the streets. Pedestrians and carriages now crossing freely between cars without fenders would, if the fenders were in use, often find passage difficult or impossible.

There are four or five types of fenders in general use in the United States. One of these as used on cars

whose sills are of medium height above the track, is of curved form, and when not in use is held up against the rear dashboard. The upper crossbar of the fender can be adjusted on low cars to a position 15 to 17 inches above the track, and when dropped its front rests directly on the surface of the street, so that no object can pass under it. Sometimes it has at each side a rubber covered spring to prevent a body from being thrown to one side. In cross country and interurban cars this type of fender is made large enough and strong enough to pick up a horse and carry it until the car comes to a stop. In all these fenders there is a cushion against the dashboard, made of strips of strong spring metal, which prevents the object struck from coming into contact with any hard surface on the front of the car. These fenders are dropped by a pedal on the platform, operated by the motorman's foot.

Another type of fender in use in some large cities is composed also of metal slats. The platform of the fender stands at an angle of 45 degrees, with a rubber hose 4 inches in diameter stretching across the lower end, which is usually about 3 inches from the ground. When a person is struck by the fender, the platform, which swings on a pivot, falls back and brings the outer end with its rubber tube about 20 inches above the ground, while the rear end, nearer the car, is 6 to 8 inches lower. Thus a basket or pocket is formed which carries the person safely until the car can be stopped. The back guard is made of a steel spring placed several inches lower. If the car is going at great speed the body will strike against the guard, but can not be thrown out again onto the track. This fender is always in position and requires no action on the part of the motorman.

One type of nonrigid car fender in use to some extent, based upon the principle of receding action, has several plates or detached portions like shutters across its farther end to conform to uneven surfaces, and offset the effects of the oscillation of the car. The receptacle back of these plates is composed of metal network. When in use, the projection of the fender beyond the car is slight; when not in use, it can be pushed underneath the car. Another form of automatic car fender has two automatic release devices in addition to the ordinary foot drop in common use. One of these automatic devices consists of a front trip bar, which is forced back on coming into contact with obstructions. The transmission through lever and cranks of the motion caused by the impact operates the foot pawl of the fender. When this trip bar might prove inconvenient, as in the case of the track being covered with snow, it can be turned aside against the fender and the other automatic device employed in its place. This second automatic device is operated by the impact of the body falling against the fender cradle or netting. The contact with the fender pulls forward rocker arms attached to levers which operate the foot pawl. The complete fender is attached to a car by iron bolts connected with the outside sills of the car platform. It folds up compactly without interference with the car couplings or headlight, and can be used on various styles of cars. The front of the fender is made of rubber tubing, with a steel cable passing through it.

According to Table 95, of the 66,784 cars reported, 60,290 were passenger cars, of which 43,273, or about two-thirds, were equipped with fenders. The state of New York, with a total of 14,040 cars, reported 7,123 equipped with fenders. The small proportion equipped with this device is due to the fact that cars of the elevated systems are operated in trains and need no fenders. In Massachusetts 7,021 cars out of 8,310 were reported with fender equipment. In Illinois 3,214 cars out of 7,778, and in Pennsylvania 5,693 out of 7,058 are equipped with such a device.

## VIII.

### CAR LIGHTING.

Of the total number of cars reported 62,369, or 93.4 per cent, were lighted in some manner. Out of this number 55,703 were lighted by electricity and 6,666, including all horse cars, were lighted by oil or gas. The detailed figures for states and companies are shown in Table 95. A number of states report all or nearly all of their cars lighted by electricity. Among these states are Connecticut, Iowa, Massachusetts, Minnesota, New Jersey, Ohio, Pennsylvania, Rhode Island, Virginia, and Wisconsin. Cars lighted by electricity are found exclusively on roads using electricity as a motive power, the supply of current thus being rendered easy and cheap. The change in the manner of lighting cars therefore closely followed the change in motive power.

The unsatisfactory oil lamp was in the beginning the only method of car lighting. This lamp was superseded on some of the cable lines by compressed gas, the illuminant commonly employed on steam railways. With the introduction of electric traction it was found to be an easy matter to light the cars by taking the current from the same circuit as that which supplied the motors. The light is still somewhat flickering from the occasional variations of voltage, interruptions of the trolley contact, or jolting at the switches, when for an instant or two the current is lost. This has sometimes been prevented by the installation of storage batteries on the cars which could be fed from the line, but this practice has been given up as the advantages did not compensate for the expense and trouble.

The lights usually installed are 16 candlepower in multiples of 5. The use of the lamps in groups or multiples of 5 is due to the fact that the average voltage or current pressure of the line is about 550 volts, and as the ordinary incandescent lamp takes about 110 volts a group of 5 of them will absorb the trolley line voltage

TYPES OF STREET RAILWAY CAR FENDERS.

without the necessity of employing extra resistance. The 5 lights are arranged in series across the motor circuit and are provided with a fuse and cut-off switch. At first ordinary incandescent lamps were used, but as jolting broke the filaments it is now the practice to "anchor" the filament by a small hook sealed into the lower larger end of the glass bulb. In some instances the lights are not merely distributed within the car, but out on the platforms, and the headlights are also usually electric. The electric headlight usually consists of a large incandescent lamp aided by a powerful reflector. A variation of this light consists in the utilization of what is known as the "inclosed" arc light, including an inner globe immediately around the arc. This is associated either with a rheostat or with a small cluster of incandescent lamps, so that either or both can be employed in accordance with the amount of light required. The car has to be specially wired for such purposes. In the early stages of development the circuits were simply run with ordinary insulated wire held down with staples, cleats, or molding. Even the main circuits from the trolley line to the motors were carried through without much protection, but it is now a general practice to inclose all these circuits in conduit, usually of iron pipe.

## IX.

### CAR HEATING.

It appears from Table 95 that in 1902, 30,159 cars, or about one-half of the total number of cars in the United States, had provisions for heating. Of this number 19,021 or 63.1 per cent were heated by electrical apparatus, while 11,138 or 36.9 per cent were heated by stoves, hot water, or other means. Electrical heating is necessarily limited to street railway systems and cars electrically equipped, the heat being derived from the circuits supplying current to the motors. It will be noticed, however, that some companies using electricity as the motive power still employ stoves for heating.

In northern climates in the old-fashioned horse cars, the coal stove was long used in winter. The car was so arranged that a stove could be introduced in the middle of one of the seats, with a pipe running up through the roof. The stove occupied space which would otherwise have been available for seating; it did not successfully heat the car, and fires frequently broke out.

Gas and oil stoves on a somewhat similar plan were also tried, and indirect methods of steam and hot water heating have been extensively experimented with, especially on interurban lines. The objections to this latter plan, however, have been the loss of time involved in refilling the steam and water reservoirs and the large incidental waste. Hot water heaters have been largely used on long interurban cars.

The usual method of heating cars electrically is to place the heaters—composed of coils of resistance wire in various forms and grouping—beneath the seats at regular intervals, the fronts of the radiators being protected by grating and the switches being so arranged that the car conductor can throw in some or all of the heaters, as required.

The circulation of air through the resistance coils in which the passage of current is engendering heat is so rapid that while the flow of warm air from the top of the heater is large in volume the air itself is not hot enough to heat unduly the front casing of the seat. In a test of an electric heater an overload of 25 per cent of current was put through it, the casing being entirely covered with damp clothes, such as passengers might wear. The current was left on for a half hour, and at the end of this time there was not the slightest indication of burning or discoloration of fabrics. It has been shown by tests that with an ordinary consumption of current of 3,160 watts a car with 4 doors and 16 windows, containing a little more than 1,000 cubic feet, traveling in an outside temperature of 28 degrees Fahrenheit, can maintain a temperature of 54 degrees Fahrenheit. Assuming that this degree of heat and consumption of current were maintained throughout the day of eighteen hours, and that the current cost the company about 1 cent per kilowatt hour, a cost for heating such a car would be slightly over 50 cents per day. The actual cost, however, would probably average well below this figure.

## X.

### REGISTRATION OF FARES.

The collection and registration of car fares has always been an important problem with the street railway companies, the one great aim, of course, being to secure payment from all passengers and to prevent the diversion of revenue from the tills of the company to the pockets of dishonest conductors. The task becomes a relatively easy one where a ticket system is employed, requiring the passenger to buy one ticket for a continuous ride, and to deposit that ticket with the conductor or in some appropriate receptacle. This is the plan that has been followed for many years on the Manhattan Elevated system in New York city. Each passenger is required to deposit a ticket in the box at the entrance to the platform, under the charge of the regular custodian. This method has been varied in some of the elevated stations by the introduction of a registering turnstile; but where the volume of traffic is great, as it is at so many elevated stations during rush hours, turnstiles would not be tolerated, and even at the smaller stations they do not appear to have proved entirely successful.

In Europe it is the common practice to issue tickets, not only for elevated and subway railways, but also for the regular street car and omnibus lines. In America it is thought that the travel on street cars is too much of a "come and go" character to permit the use of a

ticket system, and hence the collection and registration of fares usually depends wholly upon the conductor.

In the early days of the bobtail car the driver was also conductor and made change as well as managed his horses, the fares being deposited under his eye in a small lock box adjacent to the front platform—the box being so placed as to be seen by the passengers. This method still obtains in a few places, but its many inconveniences caused it to give place to the old portable bell punch, which enabled companies to settle with their conductors upon the basis of the showing made by the punch rather than upon the basis of the conductors' report of the number of fares collected. It soon became evident, however, that in a crowded car a conductor is likely to miss some fares, either from the unwillingness of the passengers to pay, or from the inability or unwillingness of the conductor to make collections. Although the conductor carried a punch, it did not follow that he would use it every time a 5-cent fare was collected, nor was it absolutely certain that he would ring up the fares on the company's bell punch instead of on a substitute one provided by himself. To remedy these difficulties, companies soon began to use the stationary clock register or counting machine, which is placed in a conspicuous part of the car where every passenger can see it, and upon which fares collected are supposed to be duly "rung up." The fare register system has now become universal throughout the country. Many modifications and improvements have been made to adapt the register more perfectly to varying conditions of service and to the varying practice in different places in the matter of collecting fares and issuing transfers. To obviate the disadvantages of the single register system, which, of course, would count only one class of collection, namely, so many 5-cent cash fares, the double register came into vogue, allowing other combinations of accounting, and consisting virtually of two single registers in one case.

When it is considered that the street railways are carrying at least 6,000,000,000 passengers a year, all of whose fares have to be brought to book by means of the register, it will be seen that the accounting and mechanical problems involved are of no mean nature. To show to what extent ingenuity in this direction has been carried in the way of making a street car register perform various functions, such as the registering, indicating, and printing a statement of collections—in other words, performing the full duty of a cash register and something more—the developments up to date deserve note.

Registers now on the market and largely employed by street railway companies make a distinct registration of each fare collected, the different kinds of fares being registered separately. They also keep a printed record of the collections of each conductor and of the total number of all fares, irrespective of class, as well as the number of fares in each class for each half trip. They further print the number of registrations, the trip number, the date of the day and month, the direction in which the car is going, the name of the conductor, and a duplicate or triplicate summary record of the day's business, irrespective of the number of conductors who operate it. When not in service the register may be locked, and can not be operated until the conductor's badge number is printed upon the statement inclosed in the register. This device, then, without exceeding a practicable limit of size, acts as an adding machine, a cash register, a time clock, and a printing press, all applied to the task of insuring for the company the fullest collection of its revenues. Few companies, to be sure, use or greatly need registers that have been brought to any such degree of complexity of mechanism, but the instrument none the less illustrates in an interesting way the attention and inventiveness that have been applied to every branch of the street railway business.

## XI.

### STREET RAILWAY PASSENGER STATIONS.

The statistics for street railway passenger stations refer to the separate buildings, or public shelters, at which passengers wait to take cars, pay fares, or secure transfers. They do not include stopping points, or open-air stations along the line where passengers board the cars. There are 2,076 street railway stations reported. A large number of these were reported by elevated railways, by railways formerly operated by steam, and by fast long interurban railways. Until within the last few years it has been the universal practice to permit passengers to board or leave a car at any street corner, in contrast with the steam railway practice of running trains between fixed points more or less widely apart. A number of street railways have long furnished waiting rooms at their termini, however, or at important intersecting points, and elevated and underground roads have been operated on the station plan. In order to secure a speedier schedule, several street railways have adopted the practice of putting up signs on poles at points several blocks apart where the cars would stop, the points being located with reference to traffic demands. These points have very rarely had shelters connected with them. Within the last year, however, the growth of interurban roads has necessitated the construction and maintenance of a large number of passenger stations, and these stations have either been connected with freight and baggage rooms or with substations that contain apparatus for furnishing current to the track.

The further differentiation of interurban roads from ordinary street railway lines within cities led to the establishment of interurban waiting rooms, both inside and outside of city limits. The final step has been the construction of union terminal stations for street railway traffic. While this report has been in preparation,

A TYPICAL TROLLEY PARK IN MASSACHUSETTS.

an extensive and costly terminal station has been erected at Indianapolis, Ind., for the use of nine interurban lines. At Milwaukee, Wis., the street railway company has erected a substantial steel frame structure to be used as an interurban terminal station and general waiting room, office building, and storehouse for reserve cars. At Detroit, Mich., there is a common waiting room for all interurban lines, and at Muncie, Ind., an important interurban center, a terminal building has been built for the same purpose. At Cleveland, Ohio, one of the most important interurban centers of the country, a large station has been erected on the public square in the heart of the city, where waiting sheds have been in use for some time. The building is 62 feet long and 13 feet wide, the roof extending beyond the walls 12 feet at the ends and 4 feet on the sides. It is of brick, with stone copings, the framework of structural steel, and the roof of tile. The ticket office and check rooms are so located as to divide the interior into two rooms, the smaller being a smoking room and the larger a passenger room. Doors at the ends open to stone steps leading to the basement, where are toilet rooms for men and women. Its cost was about $10,000, each of the five interurban companies that use the building paying one-seventh of the cost and the city company two-sevenths. While all stations are not as well located as the station in Cleveland, many of them are convenient of access. The station at Indianapolis is located one block from the street railway center, and that in Milwaukee but one block from the principal street in the city. The agreement with the authorities provided that the Cleveland station should be erected in accordance with plans approved by the city, without any expense whatsoever to the municipality for construction and maintenance and to become the property of the city as soon as completed. The railways are given the right to use this station without any assurance as to length of occupancy. The interurban roads which are to use the station have no trackage in Cleveland, but run their cars into the city over the tracks of the Cleveland Electric Railway Company. The agreement provides that nothing but tickets may be sold in the station.

Admirable types of passenger and substations may be found on many of the interurban roads. In the vicinity of Cincinnati, Ohio, for example, two very attractive substations are located on the Suburban Railway. The one at Forestville, Ohio, is of stone and buff pressed brick with stone trimmings and ornamental tile roof, two stories high in the center with a one-story wing at each end. The upper floor of the central part is arranged with a suite of five rooms for the attendant of the substation, while the lower floor is occupied by the alternating current transformers and rotary converters. Each of the wings is 25 feet in length, one being a passenger waiting room, and the other an express office. On many of the interurban roads the stations resemble in general appearance and design the way stations on steam railway lines. A number of the stations referred to in the report are those connected with the parks and pleasure grounds operated in connection with street railways, or reached by them. A good example is found at Fairmount Park, Philadelphia, where the facilities of this kind are of an extensive character. The illustration presented herewith shows a pleasure ground station at the terminus of the Worcester and Southbridge (Mass.) Railway Company.

## XII.

### CAR HOUSES.

*Statistical presentation.*—The street railways of the country were required to report the number of car houses used by them, and the statistical results of the inquiry are given in Table 95. It appears from the table that 1,634 car houses were reported for the United States. These are widely distributed, but the states reporting the largest number are as follows: Massachusetts, 236; New York, 177; Pennsylvania, 173; Ohio, 138; Illinois, 96; New Jersey, 64; Michigan and Missouri, each 56; Connecticut, 55; California, 51; and Indiana, 50.

It will be noted that Massachusetts is far in the lead as to the number of car houses. Of the total number reported for that state, 115 are reported for the Old Colony Street Railway, the Boston and Northern Street Railway, and the Boston Elevated Railway. As these three companies report a total of 5,937 cars of all kinds, the car houses would seem to have an average capacity of 52 cars per car barn.

In New York state there were 14,040 cars accommodated in 177 barns, giving an average of 79 per car barn. This average, however, is brought up by the influence of such unusual figures as those of the Interurban (or Metropolitan) Street Railway Company of New York city, which accommodates 3,063 cars in 15 barns, an average of slightly over 204 cars per barn. This statement of itself gives an idea of the large amount of valuable property required in the heart of a great city merely for car storage, inspection, and repairs.

The state of Pennsylvania, with an aggregate of 7,058 cars and 173 barns, had an average of 41 cars per barn. Ohio, with 138 car barns and 4,395 cars of all kinds, had an average of about 32 cars per barn. Illinois, with an aggregate of 7,778 cars and 96 barns, had an average of 81 cars per barn; but these figures again are brought up by the totals for the two leading systems in Chicago, the Chicago City Railway and the Chicago Union Traction Company, which, with 22 barns, accommodated 4,818 cars, or 219 cars per barn.

Taking the country as a whole, it appears that with a total of 817 operating and 170 lessor companies, or a total of 987 companies, the average is not quite two car barns per company. These figures are worthy of

detailed study from various standpoints, although they do not clearly show the burdens imposed upon the companies in making provision for sheltering their cars. Where a company has a large number of cars intended for winter use only, and a proportionately large number of open cars available only for summer use, it stands to reason that the car barn provision must be very much larger for the same aggregate of traffic than where a combination type of car is made to do duty the year around. Combination cars used throughout the year may be used up more quickly, though even this is not proved; but obviously less thought and money need be spent on the question of storing the cars when not in service.

*Construction and equipment.*—Great improvement has been made in recent years in the construction of car houses, which, until the advent of the trolley, were known as "car barns." In spite of the great attention given to fireproof construction of these buildings, the frequency of fires in such places has led insurance companies to increase the rates quite generally on such properties, and to be extremely careful in their inspection and rating. This in turn has led to further improvements, so that to-day many of the latest car houses compare favorably in fireproof quality with any other structures. If not properly built and properly looked after, a car house may become a dangerous risk, on account of the inflammable material usually gathered within its walls in the shape of cars, largely composed of wood, and large quantities of repair materials, paint, oil, varnish, etc. A very little indifference on the part of tired or careless men around the repair pits or stoves in a car house may result in a serious conflagration. Modern practice, therefore, in general requires that car houses shall be subdivided more or less so as to isolate and segregate a fire that may break out. Those of the most approved construction are one story in height, built of brick or stone, or both, with walls not less than 12 inches thick. Where there are two stories the lower one has walls 16 inches thick. The ground area of a separate section should not exceed 10,000 square feet. The fire walls throughout are built of brick, are without openings, and extend 3 feet above the roof. A heavy mill roof of 3-inch plank, covered with gravel, slate, or tin, is probably better than an iron truss roof with composite ironwork. Floors throughout are of brick, concrete, cinders, or dirt where the building is of one story, and a heavy mill construction is used for everything above the first floor where the building is of more than one story. The repair pits are of brick, with brick or concrete floors, each one extending under one track only, with steps of iron or other noncombustible material. These pits are located as near the rear end of the car house as possible, and are confined to one section of the house. The tracks in such a building run "clear" without a break, and the transfer tables are so arranged as not to interfere with the smooth and quick running of cars within the building. Inside protection is furnished by liberal standpipe water service, under heavy pressure, and provision is made for cutting off all power wiring from a point outside the house, leaving the trolley lines "dead" several feet from the front. There is also a liberal provision of fire pails and chemical extinguishers, as well as of fire hose. Oils, paints, and lamps are stored in a separate building, which is fireproof and ventilated. Few car houses answer to all these requirements, but there is a steady tendency to eliminate in every case the bad features and to adopt those which have been outlined above as standard, in compliance with the general requirements of the underwriters, as every deviation involves a higher insurance rate.

The variations in the details of car house construction are almost as numerous as the car houses themselves, and it would indeed be difficult to mention any two that are exactly alike. Some of the most interesting recent work is that connected with interurban roads, where the car house is also associated with other details of the system, and where special attention has, therefore, to be given to the insurance and to other features that are not considered in the building of a mere car shed.

Thus in Newark, Ohio, there is a large car house operated in connection with the interurban system, which includes Columbus, Newark, and Zanesville roads, and the Newark and Granville and other properties. This car house not only provides repair shops for the system, but it also receives current from the distant generating plant and serves as a substation for the rotary converters and alternating current transformers. The building is of brick, with sandstone trimmings, and is divided by a brick fire wall into two main parts, with an annex at one side containing offices, boiler room, lounging room for the men, and the substation. Each half of the main building is 60 feet from wall to wall, and contains working pits, machine room, repair shops, etc. There are 10 tracks with a capacity more than sufficient to accommodate all the cars on the system. The roof is built of steel trusses, covered with corrugated iron on purlines.

The Schenectady Railway Company has a very complete system of car houses and repair shops. It may be noted, by way of explanation, that the great amount of mechanical equipment required by many of the roads for the purpose of repairs has often led to the building of extensive and elaborate machine shops. Thus, for example, one of the buildings belonging to the Schenectady system, which was formerly used for the two purposes of a car house and repair shop, has been converted into a car house, while a new building has been put up for repair shop purposes exclusively. This new building is in three sections, with outside measurements of 201 by 210 feet. The first section contains an armature room, machine shop, and black-

smith shop, and adjoining the blacksmith shop an erecting room, with 300 feet of car pits. The middle section of the building has two floors, the front of the second floor being used for offices and the remainder for storerooms. The first floor of this section has a steam road switch running through it, and a teaming entrance in front provided with platform scales. In the rear is a large store yard for special work, rails, ties, and other heavy materials. The third section, which has three tracks, is divided in the middle from side to side, the front part being a machine shop and the rear a carpenter shop. Some idea of the equipment that goes into a modern street railway machine shop may be derived from the fact that in addition to the equipment already possessed, the company in equipping this building purchased two 15-ton hand operated cranes, a motor flat car equipped with an electrically driven crane of 5 tons capacity, a power rail bender, and a number of shapers, planers, boring mills, etc. The Schenectady company has also a well-equipped emergency house, with tower wagons which are provided with hose crossings, tools, and wire. This house is arranged after the manner of a fire engine house, and is connected with the fire department alarm system of Schenectady. The wagons respond to calls in all districts covered by its lighting and railway system.

Another interesting and up-to-date car house equipment is that of the Aurora, Elgin and Chicago Railway, an interurban system completed since the close of the census of 1902. The car house and repair shops of this road conform very closely to the standard, which has been explained in detail. The car house built in 1902 is in three sections, with two single tracks in each outside section for car storage, and in the middle section three tracks, two of which have repair pits beneath them. The floor between the tracks is much lower than usual, giving the men a space of from 20 to 24 inches in which to get at the sides of the trucks without lying down, as is necessary where the floor is built level with the rails. The repair pits are 4 feet 8 inches deep, giving plenty of room for work underneath the car. Across the central portion of the car house and spanning these three tracks is a 10-ton electric crane, which travels the entire length of the repair shop. This would be an abnormally heavy crane for a car house and shop of this capacity but for the fact that the interurban rolling stock of the system is very heavy, the cars being each equipped with four 125-horsepower motors. The width spanned by the crane is 40 feet. Each of the repair tracks accommodates one car. Though this building is spoken of as a car house, and answers that definition in almost every respect, it may be noted that the company follows in general the practice of steam railways of storing cars in the yards instead of in the house. There are yards in the front and rear of this car house and repair shop, and both yards join a main line of the track, the yard being thus a loop-off of the main line.

*Lighting of buildings, shops, car houses, ways, etc.*— In connection with the information furnished as to car houses, the street railway companies were asked to give statistics as to the lighting of their buildings, it being conjectured that in the aggregate a large amount of electric lighting would be shown. The companies naturally avail themselves of their own current, because they generate it in such quantities that the fraction added for lighting purposes would increase but imperceptibly the general cost of current production. Some car houses are illuminated by special low-voltage lighting dynamos, but most of them employ 500-volt current from the trolley wires. In these cases it is good practice to have the wires supported not less than 1 inch away from the walls of the building, ceiling, or floor, and to protect them carefully against accident or mechanical injury. In examining the mechanism on the underside of the cars, portable lights are often found necessary, especially in the car pits, but in every case where practicable preference is given to fixed lights. This is true also where gas is employed, all fixtures being rigid and the flames being kept at a considerable distance from any adjacent woodwork. According to the returns of the companies reporting electric lights employed in their buildings, shops, car houses, etc., 5,282 arc lamps and 235,955 incandescent lamps were in use for this purpose. The amount of lighting was usually about proportionate to the magnitude of the system reporting and to the number of the miles of track and cars owned. As will be seen from Table 95, New York reported 901 arc and 40,346 incandescent lamps; Massachusetts, 594 arc and 34,212 incandescent; Illinois, 369 arc and 22,388 incandescent; Ohio, 470 arc and 17,207 incandescent; Pennsylvania, 631 arc and 13,110 incandescent; New Jersey, 191 arc and 11,782 incandescent; Michigan, 107 arc and 10,406 incandescent; Indiana, 95 arc and 5,843 incandescent; and Missouri, 39 arc and 11,325 incandescent.

Some of the systems reporting have for their own use a larger amount of lighting than is furnished by many a good sized central station lighting plant for general urban purposes. The Boston Elevated Railway, for instance, reported 353 arc and 19,096 incandescent lamps; the Manhattan (Elevated) Railway, 200 arc and 8,000 incandescent; the Brooklyn Rapid Transit system, 150 arc and 9,000 incandescent; the Interurban (Metropolitan) Street Railway system, of New York city, 150 arc and 5,000 incandescent; and the Cleveland (Ohio) Electric Railway Company, 100 arc and 2,960 incandescent. In St. Louis, Mo., very few arc lamps were employed in car houses, shops, etc., but nearly 10,000 incandescent lamps were in use. In the same manner the Detroit United Railway Company did not report any arc lamps, but it had 1,800 incandescent lamps. On the other hand, the Pittsburg Railways

Company reported 220 arc and only 1,000 incandescent lamps. As a general rule, the roads in Philadelphia reported few of either kind of lamp. In Chicago, also, relatively little electric lighting was reported in spite of the extent of the electric systems there, the largest amount being reported by the Chicago Union Traction Company, with 100 arc and 1,500 incandescent lamps, and the Chicago City Railway, with 70 arc and 2,700 incandescent lamps. The Metropolitan West Side Elevated Railway of Chicago employed no arc lamps, but had 6,000 incandescent lamps in service. It is perhaps a fair inference that a large part of the lighting was for station purposes. The Rhode Island Suburban Railway Company, of Rhode Island, and the Union Railroad of Providence together reported 110 arc and 4,660 incandescent lamps.

## XIII.

### TELEPHONE SERVICE.

Two hundred and fifty-seven street railway companies reported exclusive telephone service, employed chiefly for car dispatching purposes. They used 5,868 miles of line. This does not include rented circuits or instruments or other apparatus leased from telephone companies. Detailed statistics with regard to the mileage of telephone lines will be found in Table 95. A considerable proportion of the mileage is found in the service of companies doing an interurban and rural district railway traffic. For example, the extensive system of the Union Traction Company of Indiana has 222 miles of telephone lines. In Massachusetts the Boston and Northern Street Railway Company reported 182 miles; the North Jersey Street Railway Company in New Jersey, which covers a large section of the state, reported 150 miles of telephone line; the Detroit United Railways Company of Michigan operated 150 miles; and in New York state the Hudson Valley Railway Company reported 137 miles.

As already noted the telephone is principally employed for car dispatching, especially on the interurban and suburban lines. On some of the longer and faster roads the automatic block signal system is in use; but the telephone has been found to lend itself to interurban railway work, on even the more important network of lines. The overhead line construction is particularly well adapted to the system, especially where center poles are used, as the telephone wires are thus brought near to the cars. But even with side poles there is little difficulty in making the connection, the only additional requirement being a longer cord between the telephone pole and the telephone. The telephone can be employed either by locating the telephone box or instruments within the car itself, or by attaching the box, under lock and key, to one of the poles along the route. An alternative method requires the car conductor to carry with him a portable telephone set, which he can plug in at any given point along the line where connections have been provided.

One method of using the system is to run two parallel telephone wires along the road with which the telephone is connected by means of double hooks, one above the other, or by a double-pronged hook introduced between the two telephone wires. The object of the two wires is to provide a metallic or two-wire circuit, which insures better service by cutting out the induction which would result from a one-line wire with ground return. This plan has been followed on the St. Louis, St. Charles and Western Railway, where two telephone wires are carried, one above the other, on insulators attached directly to the line pole, thus rendering the use of cross arms unnecessary. This telephone circuit runs the entire length of the road, with permanent connections to the line wires at the fixed telephone instruments in the offices or stations of the road. There are no telephone stations or connection boxes along the track of the route, but the telephone set is installed within the car. The telephone is used only when the car is stationary, and the connection with the line wires is effected by an ordinary fishing pole with telephone cord running along it. Two hooks are fastened to the extremity of this pole, the distance between them being a little less than that between the telephone line wires at their point of support. The upper hook has a spiral spring which allows considerable adjustment between it and the lower hook to insure good contact for both of them. The upper hook being caught into position, the weight of the pole causes the lower hook to rest securely in touch with the other wire.

The telephone system is largely used in connection with single track roads, especially at turn-outs. The practice in train dispatching on the interurban lines around Detroit illustrates the method. All the electric interurban railways radiating from Detroit operate under dispatchers' orders given by telephone. The methods used by the three different managements which operate these lines are very similar, and differ only in detail. In each case telephones are located in cabins or booths at sidings along the line, and no telephone instruments are carried on the cars. The orders are all received orally, and no written record is kept. The Detroit United Railway system operates all its interurban lines, except the Wyandotte division, from one dispatcher's office located at Royal Oak junction, 14 miles from Detroit, from which point the dispatcher has telephonic communication with the whole united interurban system. Orders are received at the telephone booths by the conductors and are repeated to the dispatcher. The motorman must be within hearing to hear the order repeated.

The telephone lines are mainly of iron wire. Those outside the city are run on brackets with "pony" insulators. To prevent inductive disturbances they are transposed every 10 poles, and in the case of high-

tension alternating current lines, are transposed every 5 poles. The standard telephone equipment for the booths consists of a telephone instrument with an 1,800-ohm ringer, and a 5-bar magneto-generator which will ring through 60,000 ohms resistance. The instruments in each booth are connected with the line through a double-pole, single-throw switch. This switch is open when the telephone is not in use, in order that the line may not be rendered inefficient by having a large number of instruments bridged across it, thus increasing unnecessarily the resistance of the circuit. At the dispatcher's office there are switchboards in duplicate for the dispatcher, so that in case anything goes wrong with one board the other can be immediately switched in. There are four lines entering the dispatcher's office; connection with any one of these is established by simply throwing an operator's switch. The circuits are so arranged that communication can be had with many points on the system from two directions, and double-pole switches are placed at frequent intervals. In case a line is short circuited or grounded at a certain point, the switches on both sides of the trouble can be opened, and the work of dispatching can then be carried on without interruption. Within the city of Detroit telephone lines are frequently suspended from the electric railway span wires by means of porcelain insulators. This keeps the telephone wire in the middle of the street where it is free from interference by the trees.

One of the most interesting telephone systems recently put into operation in street railway service is that of the Manhattan Railway division of the Interborough Rapid Transit Company, of New York city. The exchange is located at Ninety-ninth street and Third avenue, in operating rooms built for the purpose above the car shops of the company. The main operating room contains the switchboard, the distributing frame, fuse rack, relay and coil racks, and the wire chief's desk. The board is of the "central energy" type with all the battery concentrated at the main office. The greatest distance from the central office to the instruments is about 8.5 miles. There are positions for 6 operators at the switchboard, each position being equipped with 15 pairs of intercommunicating plug circuits, consisting of double supervisory signals and combination ringing and listening cams. There is a testing section on the board, including a voltmeter and cord circuits for making ordinary line tests.

At the present time about 300 lines are in use, but the board as equipped would allow the operation of about 600 lines. The board is operated in the usual way with signal lamps, with additional bell signals for night service. The wire chief's desk is placed well in front of the switchboard and is so arranged that the attendant in charge can act both as monitor and as wire chief. Telephones are located in each passenger station and switch tower along the elevated tracks of the Manhattan Railway, as well as in all the offices, the power house, substations, and car shops.

Two styles of telephones are in use in the system. One of these is a wall type, which is employed in all the car shops, switch towers, inspection sheds, etc. The other style is a desk telephone, which is at the elbow of the ticket seller in his booth, and puts every station in direct touch with headquarters. All the outside wiring, connecting the exchange with the instruments, consists of lead covered cable, containing from 5 to 120 pairs of line. These cables are carried by a galvanized wire fastened to the elevated railroad structure with iron brackets or hangers. The force required for the system consists of the telephone engineer, 8 operators, and 5 repairmen. The operators work in 3 shifts, with 5 operators at the board in the busiest time of the day.

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# CHAPTER IV.

## INTERURBAN RAILWAY CONSTRUCTION AND EQUIPMENT.

In the Eastern states, until recently, the interurban roads have been usually an extension of some city system, owned and operated by it, and presenting few, if any, differences in the rolling stock and equipment within the city and outside. On the other hand, from the beginning of interurban railway construction in such states as Ohio, Indiana, and Michigan, as well as in those states farther west, cross country roads have often been planned and constructed to parallel and compete with steam railways, or to supply transportation to sections which the steam railways had not found it profitable to reach. It thus appears that, while many of the eastern interurban systems, which have now grown into networks of considerable magnitude, present close analogies to the street railway systems, of which they still remain a part; not a few of the western roads are to all intents and purposes steam railways, with the substitution of the self-contained electric car for the steam locomotive.

Where the interurban road is an outgrowth of the street railway system the tracks and roadbed are usually of the character to be found in semicity districts. In some instances, as, for example, in the case of the road between Albany and Schenectady, N. Y., a distance of about 18 miles, the construction of the road has helped the building in rural regions of roadways of a superior construction, such as would probably not have been found there but for the trolley.

In the Central West at least 75 per cent of the interurban roads are located on private rights of way, which usually follow the line of the public highway. The private right of way is from 30 to 40 feet wide for single track roads, on which a standard roadbed is laid with 70 to 80 pound rails and with No. 0000 copper bonds at each joint in the rail. As a general thing the electric roads have been less careful than the steam roads to avoid grades and curves. The engineers have often relied upon the high-tractive ability of the electric motor car, as compared with the locomotive, for work on steep grades. The bridge construction along such roads, however, is very often of a superior character, consisting of steel girder construction and comparing favorably with steam railway practices.

In the case of single track interurban roads, bracket construction is generally used for the overhead wires, with poles about 35 feet high, set from 90 to 100 feet apart. The bracket arm has flexible suspension for the entire length of the trolley wire. Two trolley wires are usually employed as a means of avoiding overhead frogs at turn-outs, which makes possible the maintenance of high speed and avoids interruption of the service in case of the breaking of one of the wires. The trolley poles also carry the high-tension lines transmitting the alternating current, which is lowered in pressure and converted into direct current at the frequent substations, for use on the service wires and cars. Copper wire is largely in use for this current and for the direct current feeders, but already about 20 per cent of such circuits are composed of aluminum wire, which is being experimented with. The three high-tension wires constituting the three sides of the three-phase circuits running from the generator at the power plant to the transformer at the substation are usually carried at the tops of the poles in the form of an equilateral triangle, with the wires 8 inches apart. In this way pressures as high as 40,000 volts are successfully sustained. The circuits are carried on glass or porcelain insulators, and are protected by lightning arresters against storms which might otherwise do damage to line and cars.

*Third-rail traction.*—A considerable number of interurban roads have adopted the third-rail system. One of the most noteworthy of these, technically, is that extending from Albany to Hudson, N. Y., which has been in operation for two or three years, and which has an unprotected third rail.

A notable system with protected third rail is that extending from Wilkesbarre to Hazelton, Pa. The contact rail, which is the main feature of the system, so far as this section of the report is concerned, is protected from sleet and snow by means of a hood, made of 2 by 6 inch pine plank held directly over the rail, supported by oak posts spaced every 8 feet. Both guard and rail are carried by unglazed vitrified clay insulators, spaced every 10 feet on the ties. Owing to the protection over the third rail the contact shoes or plows are in the form of a tongue or thick plate extending outward horizontally from the car truck, so pivoted and ratcheted that its adjustment to the rail can be changed readily. There is also a switch governing the connections between the third-rail shoe and the overhead trolley, which is employed for use within city limits. This railway is 26.2 miles in length and the journey by steam road between these two cities has hitherto occupied two hours. At the same average speed the Wilkesbarre and Hazelton

EXTERIOR OF FIRST AMERICAN TROLLEY SLEEPING CAR.

road can carry passengers in seventy minutes or less between the same points. The speed ordinances governing the movement of the cars in the streets of the respective cities leave only forty minutes out of sixty or seventy in which to cover the distance over the private right of way. There is a difference of 1,200 feet in the altitude of the terminal points and the right of way, 60 feet wide, is so laid out that throughout the entire line there is not a grade exceeding 3 per cent and only one curve of 18°. The grade thus established necessitated some heavy fills and deep rock cuts and a tunnel 2,600 feet long through the Penobscot mountain.

Another interesting third-rail system is that of the Jackson and Battle Creek Traction Company, connecting the cities of Jackson and Battle Creek, in Michigan, about 45 miles apart. This road is single track and built on private right of way. It has a third-rail contact, with the contact rail outside the track rails. The head of the contact rail is 6 inches above the track rails, and is supported on reconstructed granite insulators without iron top or base, placed every 10 feet. At road and farm crossings the third rail is broken and the circuit is continued under the track with lead covered and paper insulated cables. At these points the third rail is provided with oak inclines or tips.

A third-rail system has been built on the Pacific coast between San Francisco and San Rafael, a distance of 13.69 miles, by the North Shore Railroad Company, which had previously operated by steam. For the third or contact rail, which is placed outside the regular track, 60-pound rails are used over about half of the line in 30-foot lengths, and 56-pound rails over the rest. The ends of the rail at crossings are tipped or fitted with an approach block in the usual manner. The rail is mounted on block insulators fastened to the ends of every fifth tie, so as to give the insulators 10 feet between centers. Wooden insulators have been used for this purpose, and this cheaper construction appears to have been justified by the successful operation of the road in all kinds of weather, although this region is free from snow and sleet. The material used for the insulator is California redwood covered with a coat of asphaltic paint. The top of the contact rail is 6 inches above the top of the running rail, and the center of the rail is 27 inches outside of the gauge line of track. Where the roadbed will permit, the contact rails are supported on beams 4 by 6 inches laid across two ties, and fastened to the latter by wooden treenails. Where an earth support is used, the contact rails are supported independently of the track by means of strips 2 by 6 inches and 3 inches long treenailed to the tops of stout posts driven into the ground to such a depth as to give the correct elevation to the contact rail. In the yards at Sausalito and San Rafael the contact rail has been equipped with a guard or hood, the device employed being similar to that used on the Wilkesbarre and Hazelton road. At station platforms the contact rail is still more carefully guarded. At crossings, stations, and other exposed points warning signs have been placed. The total mileage of electrically operated track on this system is 13.69 miles.

*Passenger cars.*—The rolling stock of interurban roads is very often quite similar to that employed on urban systems, but important modifications have in many cases been made to meet local requirements. A fast schedule is a desirable feature of strictly interurban service, and this is determined by the character of the rolling stock and roadbed. Yet the maximum speed becomes important only when the length of the run between stops exceeds 1 or 2 miles. In the usual mixed city and interurban service stops will vary from ten to the mile in the city to one in 5 miles or even less in the interurban portion. They average four stops per mile in the city, two in the suburbs, and one to one and one-half in every 2 miles of rural track. Hence the power to secure proper acceleration is of considerable importance in maintaining a fast schedule, and attention is given to this point in the motor equipment of the car.

All the interurban cars are of the double-truck type, and a great many of them are equipped with four motors, one on each axle. If the grade exceeds 5 per cent and the rate of acceleration exceeds 1.75 miles per hour per second, four motors per car are found essential to a reliable service. Even where other conditions would permit the use of two motors the dimensions required for the necessary horsepower may be such as to exceed the allowable space, in which case four motors of smaller build but of the same capacity are used. A 6-foot wheel base has been generally adopted for bogie trucks, which, with a 6½-inch axle and a 12-inch bolster, leaves little space for the motor. The wheel diameter is limited in many cases to 33 inches by the required height of the car body. There is a tendency to the use of longer wheel bases, owing to the high speed at which the interurban roads have lately been operating.

The average length of the standard interurban car today is about 50 feet, with a total weight, when equipped, of 25 tons, and with four motors of 50 horsepower, one upon each axle of the double trucks. The air brakes are usually motor driven, but one or two of the lines employ storage air. Many of the cars provide both baggage and passenger accommodations, the baggage compartment being used also as a smoking compartment. All of them are lighted with electricity. Many are heated by hot water, this proving more economical and efficient than direct electrical heating under the conditions involved. In Michigan some of the cars are over 60 feet in length, with high-backed upholstered seats, M. C. B. trucks, and steel tired wheels. Some of the cars on the Columbus, Delaware and Marion (Ohio) Railway Company's line are 66.3 feet over all, being at least 5 feet longer than any other interurban cars built, so far as known. On the same line there are also some handsome 50-foot cars divided into two compartments,

with a seating capacity of 52 passengers. The cost of the car, finished in solid mahogany with extra bronze trimmings and elaborate electroliers, was about $11,000.

A number of the cars on interurban roads are of the semiconvertible type already referred to in another chapter, while open cars are also in use to some extent. On high-speed roads the ordinary type of open car with outer running board has obvious objections. Those built for the Northern Texas Traction Company have a center aisle with end entrances.

One of the most interesting developments in the rolling stock of these interurban lines has been the construction and equipment of two sleeping cars for use on the Ohio and Indiana long interurban lines. The car is similar in outward appearance to an ordinary parlor or sleeping car, and is mounted on two trucks, each of which is arranged to carry two 150-horsepower motors, giving a total of four motors of 600-horsepower capacity for the car. The interior arrangement is different from that of the ordinary sleeping car. The upper berth is folded up during the day, and the lower berth consists of two revolving chairs, which are swung together at night, the cushions for the berth being obtained from the bottoms and backs of the chairs. The car has a second or false floor built on top of the regular floor, and the partitions all slide down between the double floors in the daytime, working on the same principle as a roller top desk. The berths are 27 inches wide, which leaves 15 inches between the sides of the berth and the partitions of the compartment. The coach is fitted with the regular motorman's cab, controller apparatus, headlight, cowcatcher, etc.

*Freight and express service.*—For a long time it has been the practice to carry mail matter on street cars. This began with the granting of free transportation to mail carriers with their baggage, and has developed gradually into a service which comprises completely equipped mail cars in which letters and newspapers can be sorted and disposed of. It is a frequent practice to furnish street cars with boxes into which mail matter can be dropped along the route traversed by the car, the mail being collected from the car at the points most convenient to the general post office.

The handling of baggage and freight on street railway lines had a slower development, and is still in its experimental stage. In New York city an express transportation company operates in connection with the Metropolitan Street Railway Company and utilizes several express street cars, which run between designated points at certain hours of the day solely for the purpose of transferring express, baggage, and packages in bulk.

Some of the street railway companies have gone more thoroughly into the heavy freight business, and have provided themselves with rolling stock and freight houses.

But the most extensive development of freight and express business has taken place on the interurban lines. An illustration of this development is found in the case of the various interurban lines entering Toledo, Ohio, over the tracks of the Toledo Railways and Light Company, with which they have traffic arrangements. The freight cars of these lines run alongside a regular freight house, with a large unloading platform. Six cars can be accommodated at the same time, and there is ample space for drays to load and unload. Freight cars are run at such hours of the day and night as interfere least with the regular schedule of passenger cars. The freight depot is owned by the city company, each interurban company paying a certain rental. The schedules of the several roads using this terminal are so arranged that the freight cars do not reach the station at the same time, and the work is equalized throughout the day. The Lake Shore Electric Railway operates three freight runs or three cars a day each way. It sends out a special meat car every day from Toledo. The Toledo and Monroe and the Toledo and Maumee Valley railways have each two cars each way. The Toledo and Western Railway has two runs out of the station each day. It brings a special milk car into the city every morning. Milk is handled by all the roads named at a straight rate of 1½ cents a gallon for any distance, and milk tickets are sold by the general officers and agents of each company. Special carload lots are handled at special rates, the Toledo station agent being authorized to give carload rates over any of the roads. The minimum charge for any article is 25 cents. The freight station is managed by a committee composed of the general managers of the companies interested; but the business of each road is conducted separately.

Many of the cars on these roads are ordinary freight cars with brake equipment, etc., similar to that on steam railways. A great many of the interurban cars, however, have freight or baggage compartments in the passenger cars. The Steubenville Traction and Light Company handles all its freight in combination cars. The rates are not so high as the express rates, but slightly in advance of the steam railroad freight charges. Out of a total car length over the bumpers of 40 feet 8 inches, the baggage section occupies 11 feet 6 inches, giving space for a large quantity of miscellaneous freight and express.

Many of these roads have developed a regular system of accounting for freight and express service, the system being similar to that followed by the express companies of this country. The Dayton and Troy (Ohio) Electric Railway has its own wagons for express service in the larger stations, but in smaller places it pays 20 per cent of the charges for delivery to the parcel delivery wagons. It has through billing arrangements with the Southern Ohio Express Company, which operates on the Southern Ohio Traction Company's cars, its express rates being considerably under those of the old express companies.

INTERIOR VIEW OF FIRST AMERICAN TROLLEY SLEEPING CAR.

This company has 55-foot freight cars, which make two round trips every day between Piqua and Dayton. The company issues a freight classification, identical with the regular railroad classification, upon which rates are based. Through billing of freight has been arranged for between the lines of several of the traction companies which enter Dayton by a division of the charges and a sharing of the expense.

The Mahoning Valley (Ohio and Pennsylvania) Railway Company operates two closed cars, built especially for freight and express service. There are 3 men on each car—the conductor, the motorman, and a laborer. Freight depots have been located in each city and village through which the line operates, although not all were constructed for this purpose. At Niles, Ohio, a depot has been built especially for freight business in connection with the company's power house; at Girard, Struthers, Lowellville, Ohio, and Newcastle, Pa., the company has buildings of its own; at Youngstown, Ohio, and at Edenburg, Pa., there are freight rooms in connection with the stations. The company does not use combination cars. It is the policy of the management to keep the passenger traffic entirely distinct from the freight business.

The package freight business of the Cincinnati, Dayton and Toledo Traction Company, formerly the Southern Ohio Traction Company, is conducted by the Southern Express Company. When the Southern Ohio properties were first consolidated the express business was placed in the hands of the Wells-Fargo Express Company under a contract similar to those in force on steam roads. The net returns to the traction company were not satisfactory, however, and the company decided to conduct the business itself. The Southern Ohio Express Company is a distinct organization, incorporated with a nominal capital stock of $2,500. The traction company furnishes the cars, crews, and power and receives 10 cents per car mile for the mileage of the freight cars. The express company operates two 35-foot freight cars between Cincinnati and Dayton, making two trips each way per day. At the beginning it purchased 30 first-class wagons and teams, sending out numerous solicitors and establishing stations in the leading towns in the territory it intended to occupy. Delivery wagons are maintained in all the leading towns, and in Cincinnati and Dayton the wagons have regular routes, making four trips per day to over 1,500 leading business houses. The company uses the traction company's passenger and terminal stations in Cincinnati, Hamilton, Middletown, Franklin, Miamisburg, and Dayton, paying half the expenses of the maintenance of the station and the salaries of its own agents. The operating expenses of the express company amount to about 75 per cent of the gross receipts. For a time the net loss was large, but for the year 1902–3 it was estimated that the net profits would be about $10,000.

# CHAPTER V.

## POWER HOUSES, EQUIPMENT, AND OUTPUT.

### I.

#### POWER PLANT AND GENERATING EQUIPMENT.

The data relating to power plant and electric generating equipment of street railway companies are shown in Table 96. The use of electricity or other mechanical motive power was reported by 764 companies, which returned a statement of 805 power houses, not including substations and companies that purchased their motive power.

As steam was reported by 540 companies as the primary motive power for generating their electric current, it would appear that these companies in some instances embrace a number of subsidiary companies, thus furnishing current for their whole network from plants of a sufficient capacity to care for the necessities of more than one road. The 2,336 steam engines, which are classified in the table according to horsepower capacity, had an average of 556 horsepower per engine. The 1,589 engines, with a capacity of 500 horsepower or under, had a total capacity of 421,051 horsepower, an average of 265 horsepower per engine. The 430 engines having a capacity of more than 500 but less than 1,000 horsepower had a total capacity of 297,257 horsepower, an average of 691 horsepower per engine. The 317 engines of 1,000 horsepower and over had a total capacity of 579,825 horsepower, an average of 1,829 horsepower per engine.

There were 37 companies that reported the direct use of waterpower in their own plants for current generation and that did not sell any such power in the form of hydraulic service or electric current. These companies used 159 water wheels or turbines, with a total of 49,153 horsepower, an average of slightly over 300 horsepower per wheel. There were 129 water wheels of 500 horsepower or under; 12 of more than 500 but less than 1,000 horsepower; and 18 of 1,000 but less than 2,000 horsepower. Of the total horsepower thus reported, 34,215, or 69.6 per cent, was reported by 16 companies in the states of California, Georgia, Maine, Minnesota, and New York. The largest plant of this nature was shown for the Twin City Rapid Transit Company, of Minneapolis, Minn., which reported the use of 12 water wheels, 10 of which were of 1,000 horsepower each. It should be borne in mind, however, that other than that included in the table, waterpower is extensively used for the operation of street railway companies. A notable case is that found at Niagara Falls, which may be taken as typical, and which not only generates current directly for the local street railway network at the Falls, but which also transmits an immense amount of power some 20 miles to Buffalo, where it is manipulated and employed on a large scale for the propulsion of the cars of the Buffalo systems, as well as the cars of the interurban system between the two points. Detailed statistics of water wheels will be found in Supplementary Table 3, which also presents the details for the gas engines employed in the main generating plants.

It appears that 15 gas engines, of a total of 1,925 horsepower, were employed. Three of these, with a total of 1,000 horsepower, were located in the state of Pennsylvania, and 5, of a total of 400 horsepower, in Illinois. These two states alone account for nearly 75 per cent of the capacity reported. The power plant statistics in Table 96 include also 301 auxiliary steam engines, of a total capacity of 10,074 horsepower, which were used by 84 companies for miscellaneous purposes, such as driving pumps, etc.

The power plants referred to in Table 96 reported a total of 3,853 boilers, with an indicated capacity of 893,205 horsepower, the average capacity per boiler being 232 horsepower. In a general way the approved practice is to have a boiler capacity larger than the engine capacity and an engine capacity larger than the generator capacity, thus providing a liberal factor or percentage of safety over unavoidable losses. The figures in Table 96 would indicate an apparent departure from this practice, but the departure is more apparent than real. As a matter of fact, the boiler capacity would usually be found quite adequate for the work it is required to do. Many power houses have dynamo and engine capacity in duplicate or in reserve to provide against a possible breakdown of any unit, or for changing the load from one set of apparatus to another, according to the demands at different hours of the day, although the same boilers remain in active service all the time.

The statistics for the number and horsepower of dynamos driven by steam engines, gas engines, and water wheels, respectively, are given in Table 96. The table shows a total of 3,302 dynamos of all kinds, with a total capacity of 1,204,238 horsepower; in round num-

bers, about 900,000 kilowatts. The 2,861 dynamos of the direct current type had a total capacity of 972,314 horsepower, and the 441 alternating current dynamos a total capacity of 231,924 horsepower. It appears, therefore, that the direct current apparatus furnished nearly 81 per cent of the total capacity. Of the direct current dynamos, 2,324 had a capacity of 500 horsepower or less, with a total of 422,924 horsepower; 328, more than 500 but less than 1,000 horsepower capacity, with a total of 218,934 horsepower; and 209 had a capacity of 1,000 horsepower and over, with a total capacity of 330,456 horsepower. The use of small machines evidently predominates, as more than three-fourths of all the machinery was rated at 500 horsepower or under, and the capacity of such dynamos was 43.5 per cent of the total for direct current. Supplementary Table 4, which supplements Table 96, in regard to the distribution of alternating current dynamos, shows that this form of dynamo was employed by 163 companies. Of this number 128 reported that they also generated current for sale for light and power, thus indicating the use of these generators on a wide range of service, quite aside from and additional to that in the street railway field. The 441 alternating current dynamos had a total capacity of 231,924 horsepower, an average of 526 horsepower per dynamo. Three hundred and twenty-nine of these machines were of 500 horsepower or under, with a total capacity of 61,935 horsepower; 54 were of more than 500 but less than 1,000 horsepower, with a total of 36,418 horsepower; and 58 were of 1,000 horsepower and over, with a total capacity of 133,571 horsepower. It appears, therefore, that the alternating current dynamo reversed the conditions in regard to direct current, and that the 58 dynamos of the larger size, or only 13 per cent of the total number, have 57.6 per cent of the total capacity.

*Location of power house.*—The electric railway power house and its equipment and the methods adopted for delivering current to the line, are among the most important subjects embraced within this report. Although the conditions of operation and the nature of the apparatus employed have changed in a most radical and revolutionary way since the first trolley car went into successful operation, certain fundamental principles still, and will probably always, apply to the location of the power plant itself, although it is by no means sure that the substations will remain as they are, either as to location or as to equipment, or even as a continuing necessity.

The considerations governing the location of the central power house are primarily those connected with the supply of fuel or juxtaposition to the waterpower by which the generators are to be driven, and next to these considerations may be said to come the supply of water for the boilers and the disposal of ashes. Hence, in a great many places, it has been found desirable to place the power plant near the railroad tracks over which its coal supply must be transported. In towns of smaller size and on interurban roads the governing consideration is not centralization, but is to be looked for rather in convenience of access to the coal or water supply. The location of the power house has, moreover, been rendered of less vital importance than formerly by the general adoption of the plan of having substations, a practice which naturally makes for flexibility. The substation itself is the outgrowth of the widespread use of alternating current machinery instead of direct current generation.

The well-established limits to the economic distribution of direct current at the ordinary voltages for street railway work—say, between 450 and 550 volts at the motors—do not exceed 10 miles, although longer distances have been covered. A great many electric railway systems far exceed such a length either in total mileage of track within a limited area or in the continuous stretch of a line in some given direction; but if the power plant be direct current, and be located midway of the line of road 16 to 20 miles long, it is advantageously disposed with regard to its work, and can feed current economically to cars even at the two termini. When, however, roads are from 50 to 100 miles in length, the substation becomes a necessity, if the current is to be distributed from one central power house. The high-pressure alternating current has been found in practice, during the past ten years, to be equally desirable for current distribution in cities where every inch of traction is well within the limit at which direct current could be furnished economically to the cars from a central power house. The principal reason for this is that the use of the alternating current enables the power houses to be centralized and reduced in number. Indeed many engineers believe that with alternating current motors on the cars substations will disappear, or at least will be so modified as to their functions that the location of the power house may have to be determined upon other grounds and arguments than have heretofore applied. If this belief is well founded, the practice of using substations will have proved a short lived one. But it may be pointed out that the literature of the industry ten years ago is virtually bare of reference to alternating current supplied to substations. For a time, and even at the period in the art under discussion, boosters for maintaining voltage at remote points on the system offered a temporary solution of the difficulties encountered in direct current supply. The recent advent of alternating current, however, has so changed the outlook and the conditions that the uneconomical booster is no longer considered as a serious factor. In the earlier days the question of determining the best location of the station might be governed by the fact that, in order to attain cheap fuel or a cheap water supply, the gain in this direction might be offset by the increased investment in feeder construction. Here again resort to the alternating current has modified the principles which governed within the decade.

A few figures compiled by Mr. A. B. Herrick, bearing upon these points, may be cited as of general interest:

Take, for example, a 15-mile stretch of road with cars uniformly placed, requiring 20 amperes per mile average and 40 amperes per mile maximum, and assume 20 per cent drop in voltage on 7½ miles of road. With the station centrally located the copper will cost about $20,000. If the station is 2 miles from the center of distribution the installation cost for copper will be increased $6,700. Property in the central location would, therefore, be worth this much more to the railway company, as better distribution could be obtained from a station on that site.

Where the coal can be delivered directly from the cars to the coal bins of the station the cost for handling is at the lowest. Where there is any rehandling the price depends upon the distance traversed. To load and move 1 ton 1 mile or less costs about 25 cents per ton; 1½ miles, 30 cents; 2 miles, 32 cents. These figures are taken from average prices paid for hauling over a variety of roads. A station with the capacity mentioned above would require, on an average, about 11 tons of coal per day. If hauled 1 mile this would cost per year, with shrinkage in coal weight due to moving, about $1,000, or 6 per cent on an investment of $16,666.

The value of condensation in a street railway plant of the size cited above can be roughly estimated at 18 per cent saving in coal. At $2.80 per ton this would be $2,023 per year, or 6 per cent on an investment of $33,700. This station would take about 700,000 cubic feet of water per annum for boiler use. If the water had to be bought at, say, $1 per 1,000 cubic feet a site would be worth $11,600 more where free water could be obtained.

*Construction of power houses.*—The electric railway power houses enumerated in this report are almost universally built of brick with stone trimmings, and are usually of a most substantial character. They are sometimes quite ornate in appearance. Of late steel framework has been largely resorted to in their construction. It is a common and advantageous plan to divide the building into two main portions, one occupied by the boilers, the other by the engine or dynamo. In some cases the power plant is associated with the car barns and even with the general offices of the company. In some plants the building, instead of being laid out on one floor at the street level, is two or three stories in height, with the various steam and electrical departments imposed one upon another. The determining consideration in this matter of height is usually the cost of real estate.

The building requirements laid down by insurance companies for rating risks on electric light and power stations indicate, in detail, what would be generally regarded as the best present day practice in such construction. The regulations and restrictions embody the following features:

Walls: Brick or stone, at least 8 inches in thickness for a one-story station, and 4 inches to be added for each additional story; or iron, to extend at least 3 feet above roof. Height: One story, without space below. Area: Not over 5,000 square feet of ground between standard fire walls. Roof: Metal, with metal trusses and supports. Floor: Brick, cement, stone, or earth. Wooden platforms may be used about machines. Cornice: Brick, stone, or metal. Eaves: Not less than 15 feet from ground. Finish: No combustible finish or finish leaving concealed spaces. Division walls, if any, to be of brick or stone, with standard fire doors or shutters. Partitions about offices, storerooms, or elsewhere to be of noncombustible material. Boiler, except in standard station, to be outside or cut off by standard fire wall, with standard fire doors and shutters. Roof of boiler house to have proper ventilator. Stack: Brick, or if iron, to be outside and on brick foundation. Wire tower, if any, to be brick or stone, with same kind of roof as station proper. Stairs, if any, to be properly inclosed when deemed necessary. Elevators, if any, to be in brick tower, or with self-closing hatches. Heating to be by steam, hot water, or hot air by blower system; piping for same to be free from woodwork and supported by iron hangers. Stoves may be used in office only. Lighting to be by gas, with brackets so arranged as not to allow flame to come in contact with woodwork; or by electricity, with wiring in accordance with rules. Occupancy to be only for legitimate uses of the station itself. Exposure: Must be unexposed to other hazards within 50 feet; or, if exposed, to have approved fire walls on exposed sides.

*Equipment of power houses.*—At the beginning of the ten-year period which closed with the year of the special investigation, steam generating plants were usually equipped with sectional tubular boilers similar to those in most modern plants, and many other features of construction and equipment were not greatly dissimilar to those of to-day. The great power plant of 1902 differs most strikingly from the older plant in its more general use of automatic machinery of all kinds for bringing coal to the boiler fronts, for stoking the fuel upon the grates, and for disposing of ashes. The generating plants in 1892 usually consisted of a number of small units leather-belted directly to the steam engines, sometimes even with the intervention of countershafting. Direct connected engines and dynamos were rare. Most of the engines at that time, therefore, were of high speed, and the dynamos or electric generators were of the bipolar type. The engines were frequently simple in type, and even when compounded were often run noncondensing. The bipolar generators, though wound for the higher voltages—e. g., 500 volts—even then becoming the standard on street railways, were of the general type designed for electric lighting, and were not particularly well adapted for the purposes intended. The water wheels now in use in electric railway power houses do not differ greatly from those of 1892, except that it has been found necessary to adapt them to generating plants of the long-distance power-transmission type. In 1892, however, the heads under which the water wheels operated were far less efficient than those of 1902, and the requirements were in every respect less exacting, the units, moreover, being much smaller.

In the modern plant much care and thought are given to the classifications and specifications applying to the equipment, especially the huge generators and steam engines, or turbines. The engine and generator specifications, for example, must be in harmony so far as capacity, speed, and regulation are concerned. It is the general practice of manufacturers of generating dynamos to give their machinery a nominal rating, which allows for 25 per cent, 50 per cent, or even 75 per cent overload for certain periods of time ranging

from ten minutes up to two hours or longer. The engine built to drive direct or continuous current generated in this class of work is designed for rapid changes of speed and output, for certain changes in the load and for close regulation. What would be considered ideal regulation in a direct current plant, however, would hardly be satisfactory with alternating current generators. There is no great difficulty in running two or more direct current generators together on the same circuit, and in dividing the load so that each does its share of work; but in running alternating current generators, particularly at slow or medium speeds, the problem is different, and calls for other conditions of design.

The engineering societies of the country, such as the American Institute of Electrical Engineers, and the American Society of Mechanical Engineers, have formulated general rules bearing upon these points, and established certain standards for direct connected generating sets of machinery. As to the general practice throughout the country at the time of this report, some interesting variations in practice may be noted.

Direct current generators are still retained in a few of the larger cities, such as Boston, Mass., where the Boston Elevated Railway Company, operating both surface and elevated lines, has continued to use direct current and has erected a number of small stations instead of concentrating its power in one or two large ones. Thus the company reported 8 power plants in 1902. It is interesting to note that while the original power plant of this system had a few years ago 36 small generators, each one of only 50-kilowatt capacity, the company now has 5 generators, each of 2,700-kilowatt capacity. About 20 per cent of the capacity of the company's stations is used for supplying the elevated lines and 80 per cent for the surface lines. In Chicago, Ill., also, the street railway companies were still supplying their lines from direct current power plants, some of the apparatus belonging to the earlier stages of the art, with simple engines and rope driven generators, but the new work contemplated brings the engineering in the street railway field in that city up to date. In Cleveland, Ohio, Indianapolis, Ind., and to a large extent Milwaukee, Wis., direct current generation continues to be the standard usage.

In Minneapolis and St. Paul, Minn., the Twin City Rapid Transit Company has had the advantage of a waterpower of about 7,500-kilowatt capacity, but the growth of business has necessitated the addition of a steam plant whose ultimate capacity will be 21,000 kilowatts. The system is alternating current, 3-phase, the waterpower plant being about midway between the two cities, and the station voltage is 3,450-volts 3-phase, at which pressure current is transmitted to the substation in Minneapolis. In transmission to St. Paul the voltage is raised to 13,000. At both points the current is, of course, "stepped down" and converted in the usual way for use on the cars, the substations having storage batteries. At Philadelphia, Pa., the three principal power houses have been direct current, but a change is being made to 3-phase alternating. The same is true of Pittsburg, where the Pittsburg Railways Company has heretofore operated no fewer than eight direct-current stations. In San Francisco the United Railroads have had five direct current power plants in operation, but have been making a change to alternating current for generating and transmission. St. Louis affords, probably, the most important example in this country of direct current street railway power plants, with its enlarged station at Park and Vandeventer avenues, having an output of 30,000 amperes. The alternating current has now, however, penetrated into this territory for use in the outlying part of the company's system.

It will be seen from the foregoing facts that the direct current plant is still regarded as modern, economical, and efficient, and is largely in use, though not what the French would call the "dernier cri."

In August, 1903, at the time when the compilation of the statistics in this volume was approaching its conclusion, alternating current stations for supplying a large proportion of the load were in use or under construction in New York, Kansas City, Baltimore, and San Francisco. Combination direct and alternating current plants, where the direct current is used to supply what may be termed the inner circle, while the outlying regions are operated with the aid of the transformed and converted alternating current, were in use in Brooklyn, Denver, Milwaukee, Philadelphia, Pittsburg, and St. Louis. The large use of waterpower at Minneapolis and St. Paul in connection with alternating current has already been noted. In Buffalo the power plants for street railway work consisted largely of substations for that part of the current generated at Niagara and transmitted by 3-phase lines, partly overhead and partly underground.

It has been stated by many authorities that there is considerable difference between the lay-out, or plan, of a large alternating current station, in which nearly all the power for supplying the system is concentrated, and the plan of smaller direct current plants. This is due partly to size and partly to the fact that the concentration of an immense amount of generating apparatus under one roof makes interruption of service much more possible and serious than where a number of scattered stations feeding into the common network are in operation.

The plan of isolating one section of a station from another is now being very thoroughly carried out in large plants. For example, in the large alternating current stations special provision is made for the isolation from each other of high-tension bus-bars in brick and stone insulating cells, and for the segregation of the generators into individual groups, so that trouble

with one group can not affect the others. As interruptions are also to be feared from the steam piping and boiler room, the prevalent practice of connecting large generators, engines, and boilers, in parallel permanently, on the same bus-bars and steam pipe lines, has been abandoned in the best modern power houses. It is evident that, with the introduction of units of 5,000 kilowatts and upward, the permanent united operation of the entire station is not necessary, as it is with the smaller units. A study of the latest designs shows that in stations with such heavy units, each unit with its boilers becomes a section of the station by itself; capable of being operated in parallel with other units, but only through the medium of steam piping and electrical connections, which can be quickly cut apart. In steam piping, companies now use quick-acting electrically-operated valves, thus avoiding the danger heretofore always present in the older systems, due to the fact that essential valves could not always be reached in case of accident.

Another feature which has required careful attention on account of mining strikes, has been the storing of coal. It is most essential that there should be adequate storage room for emergency supplies, and, moreover, engineers have been obliged to devote a great deal of thought to the design of a plant whose coal supply may have to be received by rail instead of by water.

Very recently the steam turbine, which is now to be found in several plants, has, also, claimed consideration. Where companies introduce a steam turbine, radical changes from the usual design are necessary, as the boiler room must be larger, in proportion to the generator room, than in an engine driven plant. The general plan of the few large steam turbine street railway power houses that have been designed is to place boilers on both sides of the generator room. One notable exception to the rule is the plant of the Commonwealth Electric Company, in Chicago, where the boilers are placed only on one side of the generator room, and are all on the ground floor. Although the plant is operated for lighting and for stationary motors, and not for street railways, the principle here followed is approved for both fields of work.

*Kingsbridge power plant.*—The latest and one of the best illustrations of street railway power house construction and equipment is the Kingsbridge power plant, built for the Third avenue division of the Metropolitan Street Railway (Interurban) Company of New York. This plant was built before the statistics in this volume were compiled, but it was not equipped and operated until somewhat later. The interior of the plant is shown in the accompanying illustration.

The plant has sixteen 3,000-kilowatt units located in two rows of eight each, in an engine room parallel to the boiler house, which contains two tiers of boilers. The entire structure is 320 feet long and 244 feet wide. The engines are arranged in the usual way on each side of a center aisle, and the boilers are in batteries facing each other on each side of the fire room. This plant has also a wide transverse aisle running crosswise of the house, which, with the longitudinal passageways, virtually separates the plant into four sections. Just inside of the boiler wall in this transverse passage are placed four large barometric condensers, each serving one-quarter of the plant, and any three of them capable of serving the whole plant.

Each quarter of the boiler house has an independent smokestack; but the flues leading to the four stacks are so connected that the gases from one-quarter may be forced to any other, enabling one stack to relay another if, for any purpose, this should be necessary. Economizers are placed in the flues, and the 200-foot stacks, yielding sufficient natural draft for ordinary service, are reinforced by supplementary mechanical draft, by which the effective height of the stacks may be increased to about 400 feet when desired. It will be seen, therefore, that each quarter of the boiler plant is provided with its own stack, economizers, and mechanical draft. Moreover, each quarter is so connected to four of the engines driving 3-phase alternators as to serve primarily one-quarter of the engine room, which, in turn, is connected by suitable exhaust to a condenser large enough for four units. The station may, therefore, be considered as consisting of four independent plants, so connected that they may operate as one entire system, or may be sundered into divisions of two or four as operating conditions may require.

In general design, spacing, and operating characteristics, this station is so laid out that while there is ample room for all required purposes there is no space wasted, the result being that the station covers just 1.11 square feet per horsepower of generating apparatus.

The auxiliaries of the station are, in the main, steam driven, the auxiliary exhaust being utilized to heat the feed water prior to its discharge to the economizers. Ample oil circulating systems are provided, with filtration; and the usual complements of service for coal handling, cold storage, ash handling, etc., are amply provided.

The building is of a very substantial character, and rests upon a substructure of some 18,000 piles, capped with 6-foot monolithic slabs of concrete. The steel framing is somewhat more substantial than is usual in structures of this class, and the building throughout is of a high character. Architecturally, it is of pleasing appearance, plainly, but very substantially finished. The plant as a whole probably represents the highest type of design and construction within the class to which it belongs, particularly in respect to the proportions introduced into the general design, the sufficiency covered in the details, and the care and fidelity with which the construction has been uniformly sustained in keeping with the intent of the design. Among its interesting features, not usually found in power plants,

TYPICAL INTERIOR, MODERN TROLLEY POWER HOUSE, KINGSBRIDGE, NEW YORK CITY.

are the methods provided for handling the engines from a single point on the upper platform, the large central condensing plant, and the relation of the condensing plant to the grouped main units.

Another accompanying illustration is an exterior view of the Pratt street power plant, which supplies current to the Baltimore trolley system. The notable feature in connection with this building is its location at the water's edge, permitting the receipt of fuel direct from ship or barge by a most elaborate and effective system of conveyance.

## II.

### SUBSTATIONS.

The function of the substation is to distribute the current which the main power plant generates. The growth of the system of generating polyphase, alternating current at one central point, has made substations necessary in different parts of the territory, which receive on "step-down" or receiving transformers this current transmitted over single wires or cables at high pressure. The current passes from these transformers as alternating current of low pressure and is received by rotary converters, a species of the composite double-wound dynamo, at the collector rings, and delivered at the commutator on the other side as direct or continuous current at the normal pressure or voltage used on street railway motors, namely, 500 to 550 volts. This direct current either goes out to the section of the line fed by the substation or is stored up in storage batteries located at the substation.

According to the data given in Supplementary Table 6, the substation equipment of the 105 companies included in the report embraced 926 transformers of 221,459 horsepower, exclusive of 14 for which the horsepower was not reported; 358 rotary converters of an aggregate capacity of 186,688 horsepower, exclusive of 8 for which horsepower was not reported; 20,960 storage battery cells of a reported horsepower of 39,249, the capacity of 1,080 cells not being reported; and 40 miscellaneous machines of 6,235 horsepower, exclusive of 3 for which the horsepower was not reported.

A very large proportion of this equipment is to be found in New York city, where the largest substations are those in connection with the plants of the Interurban or Metropolitan Street Railway system and the Manhattan Elevated Railway.

*Manhattan (elevated) system.*—The main power station of the Manhattan system is located on the East river between Seventy-fourth and Seventy-fifth streets, while the seven substations for delivering the current received from it are located in different parts of the city. Illustrations of some of the substations on this system are here presented.

The Manhattan elevated substations are generally 50 feet wide by 100 feet long, and have four floors above the basement, the two upper being reserved for storage batteries. The lower floor contains the rotary converters set on concrete foundations. The second floor, in the form of a gallery, contains the substation switchboard and the alternating current transformers, familiarly known as the "statics." Between the galleries a 25-ton crane traverses the space over the converters, the gallery being served by 5-ton cranes. The buildings are of steel construction so designed that the inner columns will carry the heavy loads, thus permitting a symmetrical spread of the large foundations required. The floors are of concrete construction. The battery rooms are paved with vitrified brick laid in asphaltum. All the buildings are provided with electric elevators.

The Manhattan Elevated, while possessing its due proportion of transformers and rotary converters in substations, reported only a small number of storage batteries. The system depends almost entirely upon live current as distinguished from that which is stored up. In this particular there is opportunity for difference of practice between electric railway operations and electric lighting. It would be impossible for a company doing a commercial lighting and stationary motor business to depend upon live current, the supply of which must be renewed incessantly by the generators without any reserve or precautionary measures against breakdown or sudden stoppage. Hence, the storage battery is a vital and essential part of the electric lighting system. In transportation, however, the storage battery is not indispensable and the Manhattan Elevated Company has preferred to rely entirely upon live current.

## III.

### POWER—CONSUMPTION OF, AND COST.

In a preceding section of this chapter attention has been given to the general statistics of power plant equipment. It is only with regard to electric railways that information as to power production and consumption in the operation of street car lines has been broadly available, or is of value in a technical sense. There are, however, many aspects under which the question of power is of interest to the public, aside from the modus operandi, or the manner in which transportation is facilitated, or the degree to which the form of traction affects the relative congestion of thoroughfares by cars.

For example, according to the statistics which were carefully compiled for several years by the Metropolitan Street Railway Company, of New York, at a time when it had the three systems of animal power, cable, and electric railway, in full parallel operation, it was shown that the benefits to the company were at least equal to those derived by the community at large. During the year 1900 these motive powers were all in use on the best streets for the same kind of traffic, and with a traffic density on the cable and electric lines not greatly differing. Reasons were thus furnished in

a practically conclusive manner for the abolition of the cable service, and its entire supersession by electricity. It was also shown that animal power traction is almost universally found uneconomical. It appears from the figures, which were compiled by the Metropolitan Street Railway for its own information, that the percentage of operating expenses to gross earnings in 1900 were 40.5 per cent for electric, 51 per cent for cable, and 73.6 per cent for animal power lines. The profit per car mile was 19.38 cents for electric, 17.10 cents for cable, and 6.82 cents for animal power lines. The superior economy of the electric systems, however, is not fully expressed by these figures. The car-mile unit is different in each case. The old horse car would seat only 16 to 20 passengers, and the cable car about 28; while nearly all the electric cars, at the time of the analysis, would seat from 30 to 50. The cost per passenger carried was 2.02 cents for the electric cars, 2.55 cents for the cable cars, and 3.67 cents for the horse cars. A slight modification of the natural conclusion from these figures must be made, owing to the fact that the cable cars had the advantage of a somewhat denser traffic, while the horse cars were under a disadvantage in having a less average density of travel to deal with than either the cable or electric.

These figures were last published in 1901, by which year the system of the Metropolitan company had been so generally electrified that there was no longer any particular object in going to the expense of making an elaborate study of the comparative results. The advantages of electricity, as well as the greater flexibility of the system, had by that time been demonstrated beyond all doubt. The great main artery of travel—Broadway—had been converted from cable to electricity, so that its figures during the year reported were wholly in the electrical class. It was shown during 1901 that mechanically, the Metropolitan electrical system was operated .09 of a cent per car mile cheaper than in the previous year. This reduction appeared entirely in the cost of fuel and labor, both being due to the employment of larger generating units in the new power house which the company has put into operation.

*Power plant capacity.*—Before taking up the question of the consumption of current per car mile, etc., it is interesting to study the statistics for power plant capacity which are given in Tables 87 and 88 for companies without and with commercial lighting, respectively, that use steam exclusively to drive their generating dynamos.

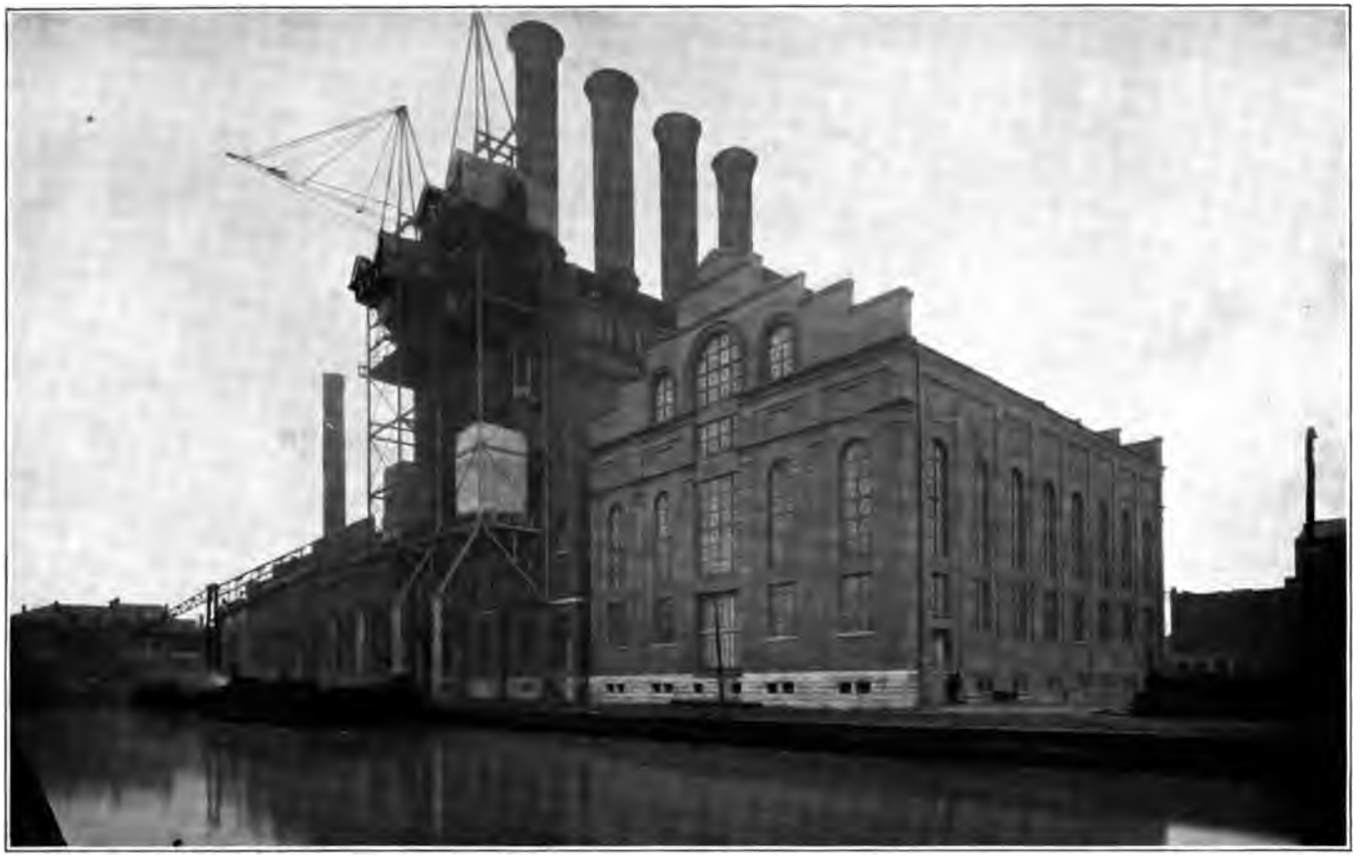
TABLE 87.—POWER PLANT CAPACITY, RAILWAY COMPANIES WHICH DO NOT SELL CURRENT, CLASSIFIED ACCORDING TO POPULATION: 1902.

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of street railways using steam exclusively | 221 | 15 | 12 | 25 | 50 | 31 | 88 |
| Number of cars | 16,771 | 5,989 | 3,778 | 2,256 | 836 | 1,167 | 2,745 |
| Generator capacity in horsepower | 366,301 | 112,832 | 64,048 | 42,075 | 19,133 | 56,030 | 72,183 |
| Engine capacity in horsepower | 394,967 | 122,630 | 66,283 | 47,765 | 20,048 | 62,630 | 75,611 |
| Boiler capacity in horsepower | 298,394 | 84,975 | 49,707 | 34,275 | 17,597 | 47,413 | 64,427 |
| Generator capacity per car, in horsepower | 21.8 | 18.8 | 17.0 | 18.7 | 22.9 | 48.0 | 26.3 |

TABLE 88.—POWER PLANT CAPACITY, RAILWAY COMPANIES WHICH SELL CURRENT, CLASSIFIED ACCORDING TO POPULATION: 1902.

| | Total. | URBAN CENTERS, POPULATION. | | | | INTERURBAN RAILWAYS. | |
|---|---|---|---|---|---|---|---|
| | | 500,000 and over. | 100,000 but under 500,000. | 25,000 but under 100,000. | Under 25,000. | Fast, long. | Other. |
| Number of street railways using steam exclusively | 185 | 3 | 13 | 23 | 84 | 13 | 49 |
| Number of cars | 15,522 | 3,714 | 3,573 | 1,896 | 1,622 | 566 | 4,151 |
| Generator capacity in horsepower | 378,046 | 51,031 | 82,233 | 49,610 | 62,857 | 23,152 | 109,163 |
| Engine capacity in horsepower | 402,270 | 57,800 | 86,165 | 57,805 | 60,830 | 24,555 | 115,115 |
| Boiler capacity in horsepower | 279,660 | 31,020 | 57,465 | 38,385 | 55,071 | 17,340 | 80,379 |
| Generator capacity per car, in horsepower | 24.4 | 13.7 | 23.0 | 26.2 | 38.8 | 40.9 | 26.3 |

It will be seen from Table 87 that 221 street railway systems whose current was employed exclusively in street car operation, with 16,771 cars in operation, had a generating dynamo capacity of 366,301 horsepower, an average per car of 21.8 horsepower. In cities above 25,000 population the generating capacity per car varied very little, being 18.8 horsepower per car for the larger cities over 500,000 population; 17 horsepower per car in cities between 100,000 and 500,000; and 18.7 in cities of between 25,000 and 100,000. In a group of 50 systems in communities with a population under 25,000, and with only 836 cars, the generating capacity rose to 22.9 horsepower, indicating the relatively greater inefficiency which necessarily attends the operation of a very small system, as compared with a larger one. It is not to be understood, however, that all this provision



TYPICAL WATER SIDE STREET RAILWAY POWER HOUSE. BALTIMORE, MARYLAND.

MANHATTAN ELEVATED RAILWAY STATION AND POWER SUBSTATION, NEW YORK CITY.

per car was necessarily called upon at one and the same time, or was required all of the time, although there may be busy hours of heavy load when all the machinery is called upon to take its share of duty. It is important to point out in this connection that the interurban lines, of which 31 are specifically considered, have provision per car much greater than in the cities.

The fast, long interurban lines, with 1,167 cars, had a total generating capacity of 56,030 horsepower, an average per car of 48 horsepower. This is very nearly three times as much as the provision made in urban centers of between 100,000 and 500,000 population. There are two chief reasons for the great difference. One is the heavier weight of the modern interurban car, as well as the large amount of bulky freight and express business now carried by them; and the second is the fact that, as a large proportion of the interurban plants are of recent construction, the power stations would almost invariably be equipped with a generating capacity considerably beyond the immediate requirements of the road. While it is comparatively easy to add to the rolling stock at need, it is a much more difficult and costly performance to enlarge a power plant, and add new engines, boilers, and dynamos.

No attempt has been made in preparing Table 88 to distinguish the proportions of current going to the various services. The 185 electric railways included in the table reported 15,522 cars and a total generating capacity of 378,046 horsepower—an average of 24.4 horsepower per car. This average is only 2.6 horsepower greater than the average shown in Table 87 for the companies that do not sell current. It might, on a priori grounds, be suggested that companies selling current could operate more regularly and more nearly at the point of maximum efficiency, and that therefore the generating capacity per car required from their plants would not be increased by an amount proportionate to the increase of business done. Thus, it might be possible for some companies to sell current from a plant having no greater capacity than would be necessary for the operation of its cars during rush hours. But it can hardly be said that the statistics in Tables 87 and 88 either confirm or weaken such an inference. The slight difference shown for the two classes of companies in the country as a whole would seem to be confirmatory; and the fact that an actually lower average is shown for the three companies with lighting plants in cities of 500,000 and over would seem to add even greater plausibility to the inference. But against this has to be set the fact that in cities of fewer than 25,000 inhabitants, where a large majority of the companies with lighting plants operate, these companies show an average generating capacity nearly 70 per cent greater than is shown for the other class of companies. So many other forces are operative in determining the figures in the two tables that it would probably be unwise to attempt any generalized conclusion from them as to the relative efficiency of the two classes of street railway electric plants.

In the case of interurban railways, again, the companies selling current report a lower generating capacity per car than do the companies that sell no current. It would probably be an utterly unsafe inference to conclude that the difference in favor of the companies that sell current is due to the possibility of working under conditions of superior efficiency. Date of construction and conditions of operation have evidently exerted a preponderating influence. Table 89 deals with the current consumption of a group of 307 selected electric railways, and does not include any roads that buy or sell power, so that the figures are as free as possible from complications of that character, although, incidentally, they include a certain but small amount of car mileage due to freight, mail, express, and other services.

These roads reported a power consumption of 1,048,799,599 kilowatt hours; operated a total of 491,023,555 car miles, and carried 1,936,860,800 passengers. This gives a power consumption per car mile of 2.14 kilowatt hours, and a traffic of 4 passengers to the car mile run. This is a very fair average of traffic on such power consumption, although, as will be seen, the table shows some very wide variations, not altogether explicable on the surface. Thus, for instance, Maryland reported one of the largest consumptions of power per car mile, 7.68 kilowatt hours. This is not due probably to the density of the traffic, 7.3 passengers per car mile, for power consumption does not increase proportionately with increase of traffic, but is due rather, as is the high traffic figure itself, to the very small car mileage. Vermont, whose figures for power consumption per car mile are the highest in the table, 8.67 kilowatt hours, has a mileage of only 145,591 car miles and difficult operating conditions, because of the hilly nature of the country and the long and severe winters. The state of Alabama, with only 0.68 kilowatt hours per car mile, has the smallest power consumption of all the states, but West Virginia shows better operating results with a power consumption of 0.72 kilowatt hours per car mile, 3,167,015 car miles run, and a traffic of 3.9 passengers to the mile. To take a single large system for illustration, the Union Traction Company, of Philadelphia, whose system is entirely electric, reported a total of 325,801,963 passengers carried, a car mileage of 59,721,423 miles, and a power consumption of 104,222,363 kilowatt hours. These figures give 5.5 passengers per car mile, and a power consumption of about 1.75 kilowatt hours per car mile. This is a fairly typical figure for a road with heavy and dense traffic and with cars of good size operated over tracks in normal condition.

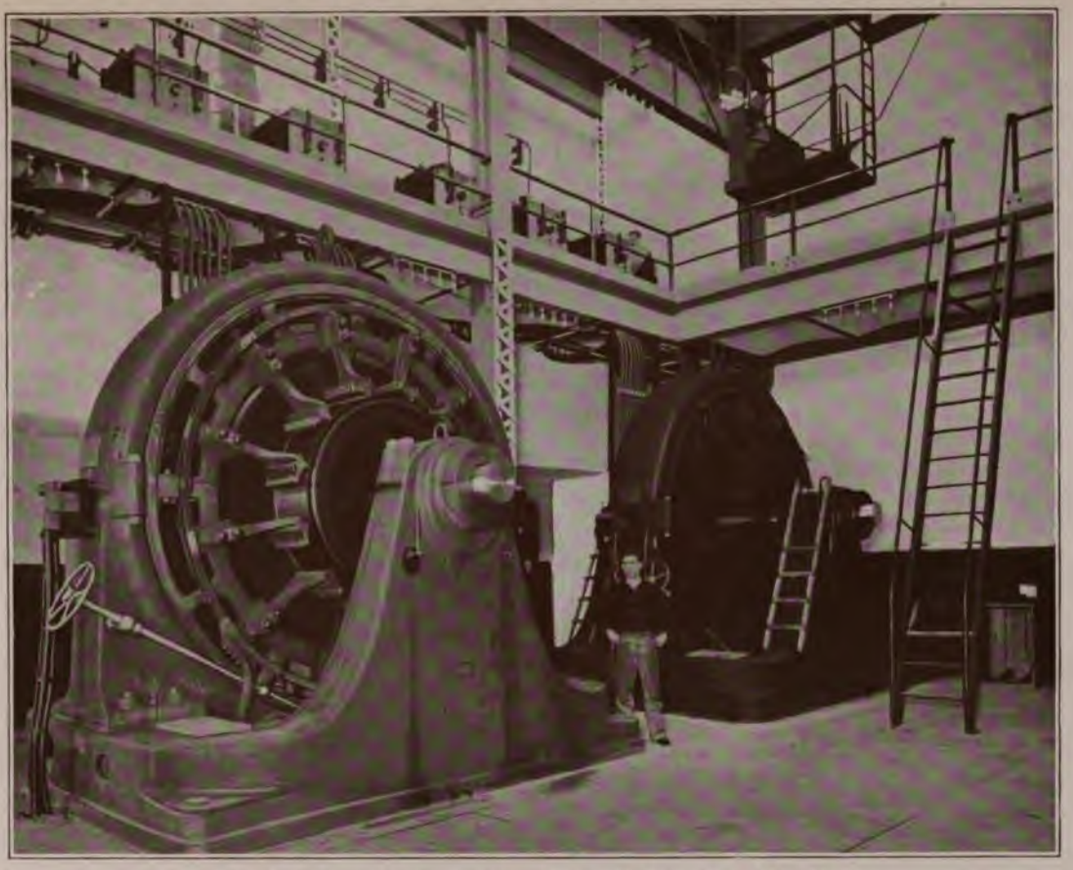
TABLE 969. POWER CONSUMPTION, SELECTED ELECTRIC RAILWAYS, BY STATES: 1902.

| STATE OR TERRITORY | Number of railways | Kilowatt hours | CAR MILEAGE. Total. | Passenger. | Freight, mail, express, and other. | Passengers carried. | Power per car mile in kilowatt hours. | Passengers per passenger car mile. |
|---|---|---|---|---|---|---|---|---|
| United States | 307 | 1,048,799,599 | 491,023,565 | 487,217,352 | 3,806,203 | 1,996,860,800 | 2.14 | 4.0 |
| Alabama | 1 | 216,145 | 316,695 | 313,980 | 2,715 | 790,200 | 0.68 | 2.5 |
| Arizona | 1 | 159,900 | 256,500 | 256,500 | ..... | 750,000 | 1.80 | 2.9 |
| Arkansas | 1 | 600,810 | 225,457 | 224,867 | 590 | 332,367 | 2.80 | 1.5 |
| California | 8 | 25,742,199 | 16,384,205 | 16,295,572 | 88,634 | 52,654,040 | 1.54 | 3.2 |
| Colorado | 1 | 11,600,000 | 6,398,755 | 6,398,755 | ..... | 30,910,210 | 1.81 | 4.8 |
| Connecticut | 10 | 37,434,257 | 12,216,040 | 11,851,028 | 365,012 | 44,228,633 | 3.06 | 3.7 |
| Delaware | 3 | 7,740,869 | 3,036,798 | 2,969,238 | 37,560 | 9,956,559 | 2.57 | 3.4 |
| District of Columbia | 7 | 21,388,645 | 11,920,796 | 11,870,385 | 50,411 | 46,085,925 | 1.79 | 3.9 |
| Florida | 1 | 492,750 | 385,988 | 385,988 | ..... | 998,290 | 1.28 | 2.6 |
| Idaho | 1 | 219,500 | 164,250 | 164,250 | ..... | 314,340 | 1.34 | 1.9 |
| Illinois | 20 | 76,309,292 | 34,383,702 | 34,310,602 | 73,100 | 107,962,880 | 2.22 | 3.1 |
| Indiana | 16 | 44,774,368 | 17,826,239 | 17,686,739 | 139,500 | 57,056,001 | 2.51 | 3.2 |
| Iowa | 8 | 12,157,928 | 6,529,898 | 6,409,092 | 120,366 | 21,366,872 | 1.86 | 3.3 |
| Kansas | 5 | 1,872,048 | 1,362,307 | 1,362,307 | ..... | 4,335,697 | 1.37 | 3.2 |
| Kentucky | 7 | 18,414,198 | 13,484,959 | 13,459,024 | 25,935 | 50,826,056 | 1.37 | 3.8 |
| Louisiana | 3 | 24,787,876 | 17,024,959 | 17,024,959 | ..... | 50,678,573 | 1.45 | 3.0 |
| Maine | 7 | 18,051,470 | 4,802,065 | 4,782,977 | 79,088 | 19,346,697 | 2.68 | 4.0 |
| Maryland | 2 | 804,783 | 112,648 | 66,740 | 45,908 | 487,756 | 7.68 | 7.3 |
| Massachusetts | 81 | 126,816,167 | 67,867,184 | 67,597,249 | 269,885 | 311,918,174 | 1.86 | 4.6 |
| Michigan | 12 | 70,473,885 | 26,564,412 | 26,010,537 | 543,875 | 96,717,676 | 2.65 | 3.7 |
| Minnesota | 1 | 8,174,891 | 2,258,884 | 2,258,884 | ..... | 9,178,517 | 1.49 | 4.1 |
| Missouri | 4 | 99,918,577 | 33,807,907 | 33,553,346 | 314,561 | 135,704,076 | 2.95 | 4.0 |
| Montana | 1 | 1,669,510 | 807,380 | 766,500 | 40,880 | 4,781,000 | 2.07 | 6.2 |
| Nebraska | 1 | 10,888,180 | 5,007,074 | 5,007,074 | ..... | 18,540,000 | 2.06 | 3.7 |
| New Hampshire | 4 | 1,808,978 | 1,120,067 | 1,119,799 | 268 | 3,272,735 | 1.67 | 2.9 |
| New Jersey | 10 | 11,208,793 | 6,242,005 | 6,226,081 | 16,024 | 23,036,234 | 1.80 | 3.7 |
| New York | 89 | 54,518,421 | 21,871,491 | 21,056,843 | 314,648 | 72,467,958 | 2.55 | 3.4 |
| Ohio | 80 | 141,908,196 | 68,007,788 | 67,380,472 | 697,316 | 282,958,540 | 2.09 | 3.5 |
| Oregon | 1 | 488,000 | 140,416 | 140,416 | ..... | 300,000 | 3.12 | 2.1 |
| Pennsylvania | 42 | 178,727,502 | 85,108,240 | 84,720,559 | 382,681 | 422,890,265 | 2.04 | 5.0 |
| Rhode Island | 5 | 82,166,670 | 9,950,144 | 9,832,162 | 122,982 | 52,004,623 | 3.23 | 5.3 |
| Tennessee | 2 | 4,012,810 | 3,765,321 | 3,765,321 | ..... | 16,898,823 | 1.07 | 4.5 |
| Texas | 4 | 7,744,794 | 4,207,582 | 4,204,344 | 58,238 | 13,856,859 | 1.82 | 3.3 |
| Utah | 1 | 866,690 | 292,100 | 292,000 | 100 | 861,910 | 1.91 | 3.0 |
| Vermont | 2 | 1,202,170 | 148,591 | 132,393 | 18,198 | 472,667 | 8.67 | 3.6 |
| Virginia | 5 | 4,851,818 | 1,830,490 | 1,822,752 | 7,738 | 5,000,368 | 2.38 | 2.7 |
| West Virginia | 3 | 2,207,015 | 3,167,015 | 3,167,015 | ..... | 12,501,879 | 0.72 | 3.9 |
| Wisconsin | 5 | 8,181,790 | 2,407,322 | 2,407,322 | ..... | 5,477,402 | 1.32 | 2.8 |

In the computations as to the consumption per car mile no allowance has been made for car lighting and car heating. Of 62,300 lighted cars, 55,703 were lighted by electricity. In the aggregate the consumption of power for this purpose would be very considerable; but it is obvious that no exact figures can be obtained, as the lighting varies materially with the season of the year, the state of the weather, the number of cars on the road, etc. This is also true of electric heating. Out of 30,150 cars heated, 19,021 had electric heaters. It was pointed out in the discussion of car heating that in winter weather to maintain a temperature of 54° in an ordinary car 3,100 watts would be required, and that this might be kept up for several hours. The power consumption for car heating undoubtedly is large. To the extent, therefore, that current is employed in car heating and car lighting, the current charged against car propulsion would be lessened. As a matter of fact, car lighting and car heating are as much a part of car operation as the act of propelling it along the track. But it would be obviously unfair to take the power consumption per car mile or per car hour in a city where little lighting and heating of cars was necessary and compare it with the consumption required in a city with long winters and short days.

*Car hours.* In Table 97 statistics of car mileage are given for all roads. In addition, 390 companies report the number of car hours of operation. The car hour is a relatively new unit, having been adopted as a standard unit of comparison in 1901, after being under discussion for some time by the American Street Railway Accountants' Association. It makes but little difference what unit is used as a basis of comparison so long as the purpose is simply to show whether the earnings or the expenses are proportionately above or below those of a similar period on the same system; but to make a comparison with another system which has a different speed schedule, length of day operation, size of cars, and different physical conditions of operation, it is essential that the unit should be a comparable one, and the principal fact which companies wish to compare is cost of operation. The car-mile unit is to a certain extent a measure of speed, but increase of speed would not materially affect the cost of operation.

Another disturbing element in the use of the car mile as the unit is the trailer. When trailer cars are used regularly and to any considerable extent their car mileage is estimated separately. But, as has been pointed out, it is cheaper to operate one 40-foot motor car than a 20-foot motor car and a 20-foot trailer



THE ROTARY CONVERTERS IN A MANHATTAN ELEVATED RAILWAY SUBSTATION.

THE STEP-DOWN TRANSFORMERS IN A MANHATTAN ELEVATED RAILWAY SUBSTATION.

hitched together. If two roads are compared, the one using 40-foot motor cars and the other a motor and a trailer of the same combined length, and if they be operated at the same speed, headway, etc., the first would show a cost, say, of 12 cents per car mile. The other one, on account of the double mileage indicated, would show, allowing for the fact that but one conductor would be needed, a little more than one-half of 12 cents per car mile for the two cars. Again the car mile does not take into account questions of grades. A car going uphill takes a great deal of power, while a car going downhill should take none, and might even become a source of current return to the line. As all grades and loads affect speed, mileage could not be a fixed standard without some sort of adjustment.

In the earlier stages of the introduction of the car-hour unit it was contended that the cost of ascertaining the number of motor car hours would be such as to hinder its adoption or use on a large system. According to street railway accountants, car hours are more easily determined than car mileage, and that the cost of ascertaining the facts is less, especially in cities where a large number of cars are run without reference to schedule time, but are operated wherever and whenever deemed necessary. Experience has shown that the reports of mileage made by trainmen are only approximately correct, but it is evident that the record of the time of starting a car and returning it to the barn can be accurately kept and verified. This seems to be the best and most accurate unit yet suggested. The arguments in favor of the car hour, as compared with the car mile, summed up briefly are as follows:

(1) The absence of the element of speed, which from the standpoint of cost is destructive of correct comparison on the car-mile basis.

(2) Conductors' and motormen's wages, the principal item of expense, are paid by the car hour and not by the car mile.

(3) Operating expenses are more directly affected by the length of time of operation than by the mileage made.

Perhaps the value of the car-mile and car-hour records can best be illustrated from a concrete example, such as that afforded by the Camden and Suburban Railway Company, of Camden, N. J. For the past four or five years that company has used the car-hour unit in connection with the car mile, and all its statistics are worked out on both bases. It will be noted, for example, that in Table 97 the company reported 319,066 car hours, a total of 2,501,430 car miles, carrying a total of 8,217,072 passengers. The output of power reported by the system was 3,734,315 kilowatt hours. The company has found the car-hour unit of value because it is the only basis upon which the labor factor can be calculated. On the other hand, the car-mile unit is after all the only practicable one for closely figuring out wear of parts and depreciation of rolling stock. An illustration of the value of using both units is furnished by the company in a comparison between one of the city lines and one of the suburban lines. The city line had receipts for the year 1902–3 of 21.46 cents per car mile, and $1.24 per car hour. The suburban line had receipts of 14.69 cents per car mile and $1.90 per car hour. In other words, the suburban line had receipts which were 32 per cent less per car mile, and 53 per cent more per car hour than the city line. If, therefore, the car-mile basis alone had been taken, the suburban line would probably be viewed as unprofitable compared with the usual standard of receipts per car mile, whereas the car-hour basis was sufficient to show that the line was operated at a good margin of profit.

The value of the car-hour unit may be again illustrated from the Camden and Suburban system, whose Moorestown line formerly terminated at Merchantville. When the line was extended 5 miles farther, to Moorestown, the question arose as to whether this extension would pay. An additional fare of 5 cents was charged over the extension. The added service required an addition of 1,360 car hours a month. An investigation showed that 80 per cent of the traffic to and from Moorestown was through traffic, and that the 5,000 population was carried on an average 120 times per capita per year. This made the additional receipts per month about $5,000. Taking this sum and dividing it by the 1,360 extra car hours per month, the receipts for the extension were shown to be $3.60 per car hour, a proof to the company and to the community of the value of the extension.

The unit has proven of further value in analyzing expenses, for example, in the separation of labor cost and the isolation of what may be called the "lay-over" expenses. For example, a short or a long lay-over would not affect the wear and tear of a car, or the power cost or consumption of kilowatt hours, but it would enter into the labor cost indirectly, which, upon lines operating at different speeds, can best be figured on the car-hour basis.

Tables 53 and 54, which present analyses of operating expenses of railways classified according to population of urban centers served, give statistics that must be considered in connection with the subject of power. The cost of operation of power plants in cities of over 500,000 population amounted to $9,641,891, or 14.3 per cent of the total operating expenses. In cities between 100,000 and 500,000 population the ratio was almost exactly the same, or 14.2 per cent; in cities from 100,000 down to 25,000 population, it was 16.2 per cent; in cities under 25,000 population, 24.5 per cent. In the separate groups of interurban lines, the ratio of power plant cost to total operating expenses was 22 per cent on the fast long lines, and 20.2 on the other.

*Thermal efficiency.*—Upon the general subject of power station economies in the matter of output and

cost per kilowatt hour unit, many facts and opinions might be offered which would aid in interpreting the statistics of the subject as given in this volume. It will perhaps be sufficient to give here the substance of a paper on power station economy presented before the American Institute of Electrical Engineers, by Prof. W. E. Goldsborough and Mr. P. E. Fansler, which embodied the results of careful tests made during the year 1902 in regard to the expense incurred in maintaining the power stations of the Union Traction Company of Indiana. The plant then comprised eight 400-horsepower water tube boilers; three engines, each with a maximum capacity of 2,000 horsepower; and three 1,000-kilowatt 3-phase generators directly connected with each engine. The results of the tests of the thermal efficiency of the plant are as follows: The efficiency of the furnace and boiler was 79.6 per cent—i. e., 79.6 per cent of the whole heat in the coal was delivered in the steam by the boilers to the engines. The average thermal efficiency of conversion between the boilers and engine cylinders is 9.11 per cent; i. e., 9.11 per cent of all the heat delivered in the form of steam by the boilers was converted into work in the cylinders of the main engines. This value of 9.11 per cent credited against the engines includes the steam used in the auxiliaries. If the assumption is followed out that 15 per cent of the steam delivered by the boilers was consumed by the auxiliaries, the thermal efficiency of the engines would be 10.7 per cent. The average total thermal efficiency of the plant was 7.25 per cent from the coal pile to the engine cylinders, and the total average thermal efficiency of the plant from the coal pile to the switchboard; i. e., the ratio per cent of the energy delivered by the generators to the total heat in the coal was 6.39 per cent.

Although it is frequently stated that the thermal efficiency of the steam engine at a maximum is about 25 per cent, it is impossible that any engine of this class working under these conditions should convert more than 12 per cent of the heat of the coal into work. This record of a thermal efficiency of 6.39 per cent up to and including the switchboard showed high economy as compared with those shown by some other stations of a similar character. Thus the total thermal efficiency of the Harrison Street station of the Chicago Edison Company, with large direct connected reciprocating engines has been estimated to be 4.5 per cent, while that of the generating station of the former Blue Island (Chicago) Storage Battery Road was found to be 5.5 per cent. Indiana block coal was used, delivered at a cost of $1.35 per ton. On this basis the cost of developing one kilowatt hour was .28 of a cent. This kilowatt-hour unit of cost may be taken as the fundamental basis for estimating the efficiency of any station; figures of this cost in various stations vary between 0.246 and 1.016 cents. Professor Goldsborough, in the report to which reference has been made, said that the station tested by him delivered to the line 6.23 per cent of the total energy of the coal, but that only 3.65 per cent of the total energy got to the cars. The efficiency of transmission as between the station and the cars was, therefore, only 50 per cent. In the discussion following the report, Mr. M. H. Gerry said that if every loss between the electrical input at the cars, and the car axle were included, the total efficiency of the plant would certainly be reduced 25 to 30 per cent more—to about 2 per cent. Professor Goldsborough admitted that this was a fair estimate, but he pointed out that power was developed so cheaply that this final waste became a small factor, one passenger per car nearly paying the whole cost of power used by a car from Indianapolis to Muncie, although the fare was only 1 cent a mile. Mr. Gerry contended that the plant was not an example of high efficiency or even of average efficiency. Professor Goldsborough replied that the plant had a very high financial efficiency, which he considered to be better than a high power efficiency. To reduce the transmission losses would be to increase the capital charge, and such an increase might more than balance the present high cost for coal. If a low-class generating station, low-class transformers, low-class rotaries, and cheap batteries were put in, the cars would not get the required per cent of power of the total energy generated. The station had the highest class of generating machinery, and should it become necessary to increase its earning capacity all that would have to be done would be to increase the copper in the lines. The regular voltage was 18,000, but in extending its system to Logansport the company had used 32,000 volts. Mr. H. G. Stott, of the Manhattan Elevated system, said that the ultimate object in any power plant was to deliver a kilowatt hour to the receiving apparatus at a minimum cost, and that there is no other object in a power plant. If the coal is expensive, an extremely efficient and expensive plant must be put in; but if coal is very cheap, one can afford to sacrifice a good deal of thermal efficiency in order to reduce the cost charges of the plant. In the end, however, one must consider the problem as a whole; that is, the cost of the kilowatt hour delivered at the receiving apparatus. The total cost of the delivery of power is the real test. In the New York Manhattan plant he said the cost of coal was 70 per cent of the total operating expenses up to the track of the elevated road, and consequently an extremely efficient distributing system and power plant were required. He thought that any comparison of efficiencies was unfair when calculated merely on the ratio of indicated horsepower to kilowatt-hour output.

With regard to the efficiency of transmission and its relation to the consumption of current, it may be repeated that this varies greatly and depends upon a number of factors, especially those connected with the length and condition of the line, the pressure employed, the number of substations, the amount of transformation,

SWITCHBOARD IN A MANHATTAN ELEVATED RAILWAY SUBSTATION.

etc. These questions are more complicated, and perhaps more interesting in the case of the longer interurban roads, and the results of some recent tests on the efficiency of transmission on one of the large interurban railway systems in the Middle West are therefore given here pertinently. The system referred to comprised about 100 miles of track built for the most part over private right of way, and was supplied with current from a single power plant at a line pressure of 26,000 volts. As the maximum distance from the station to the farthest point at which current was delivered was 60 miles, it is clear that the station was not exactly midway of the track. Current was generated by 3-phase alternating dynamos. The output measured at the generator terminals at 2,300 volts for the period of six weeks covered by the test was 970,000 kilowatt hours. This current was raised to the pressure of 26,000 volts made by step-up transformers, received by step-down transformers at five substations, and delivered to the line for the motors as direct current at a pressure of 500 to 550 volts. The output of the rotaries to the operation line during this period was 803,000 kilowatt hours, showing a loss in the transmission system of about 17 per cent. This included the loss in the step-up transformers, the transmission circuits, the substations step-down transformers, and the rotary converters. The loss in the apparatus was estimated at about 121,000 kilowatt hours, or 11.9 per cent, and the loss in the transmission line was put down at 46,000 kilowatt hours, or 5.1 per cent. The load on the power plant and the line was steadied by means of a storage battery and a carefully adjusted "booster" at the farthest substation. These figures may be taken to represent a high transmission efficiency.

## STREET RAILWAYS OPERATING ELECTRIC LIGHT AND POWER PLANTS.

As already explained, a number of street railway companies generate electricity for sale to other roads or for light, power, or other purposes. If, in such cases, the system of accounts used by the company permitted the preparation of separate and complete reports for the street railway plant and the electric light and power plant, respectively, separate reports were obtained. If the system of accounts did not permit of such separation, one report was secured for the entire plant. Where possible, the companies were required to give separately the amount of revenue derived from the sale of electric current for light or power, and the character of such service.

Tables 90 and 91 present these statistics for the 118 companies reporting.

TABLE 90.—INCOME—ELECTRIC LIGHT AND POWER PLANTS OPERATED BY STREET RAILWAY COMPANIES, BY STATES: 1902.

| STATE. | Number of companies. | Aggregate. | COMMERCIAL OR PRIVATE LIGHTING. | | | PUBLIC LIGHTING. | | | MOTOR SERVICE. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | Arc. | Incandescent. | Total. | Arc. | Incandescent. | Amount. | Electric railway service. | Electric heating. | Charging automobiles. | All other electric service. | Miscellaneous. |
| | | | | Amount. | Amount. | | Amount. | Amount. | | | | | | |
| United States.... | 118 | $6,469,726 | $4,074,684 | $660,279 | $3,414,405 | $1,417,985 | $1,267,384 | $150,601 | $768,040 | $6,630 | $77 | $9 | $4,390 | $197,911 |
| Alabama | 4 | 318,660 | 257,454 | 35,055 | 222,399 | 32,712 | 30,106 | 2,606 | 26,345 | | | | 500 | 1,649 |
| Florida | 3 | 110,209 | 84,657 | 9,441 | 75,216 | 11,900 | 9,660 | 2,240 | 13,652 | | | | | |
| Georgia | 7 | 722,728 | 421,024 | 112,940 | 308,084 | 173,183 | 153,503 | 19,680 | 119,260 | | | | 233 | 9,028 |
| Illinois | 4 | 161,070 | 118,620 | 21,929 | 96,691 | 6,458 | 6,458 | | 23,038 | 395 | | | 3,356 | 9,203 |
| Iowa | 8 | 291,142 | 154,945 | 23,586 | 131,359 | 75,435 | 71,515 | 3,920 | 40,043 | | | | | 20,719 |
| Maine | 3 | 101,892 | 67,739 | 7,978 | 59,761 | 11,856 | 10,904 | 952 | 15,141 | | | | | 7,156 |
| Michigan | 6 | 162,549 | 106,490 | 9,595 | 96,895 | 42,090 | 36,987 | 5,103 | 9,340 | | | | | 4,629 |
| Mississippi | 3 | 98,838 | 46,232 | 7,670 | 38,562 | 43,547 | 37,441 | 6,106 | 8,982 | | 77 | | | |
| Missouri | 3 | 163,406 | 138,514 | 3,533 | 134,981 | 10,250 | 9,920 | 330 | 2,240 | | | | | 12,402 |
| New York | 10 | 413,782 | 243,233 | 19,969 | 223,264 | 140,998 | 97,988 | 43,010 | 28,172 | | | | | 1,379 |
| North Carolina | 5 | 155,770 | 86,919 | 6,104 | 80,815 | 32,486 | 30,989 | 1,497 | 36,365 | | | | | |
| Ohio | 11 | 587,967 | 374,322 | 45,229 | 329,093 | 147,225 | 143,725 | 3,500 | 53,382 | | | | | 13,038 |
| South Carolina | 3 | 171,561 | 99,128 | 7,942 | 91,186 | 33,993 | 33,201 | 792 | 22,127 | | | | | 16,313 |
| Virginia | 7 | 359,158 | 261,246 | 75,248 | 185,998 | 65,954 | 62,441 | 3,513 | 28,400 | | | | | 3,558 |
| Washington | 4 | 618,385 | 439,358 | 95,182 | 344,176 | 44,544 | 22,948 | 21,596 | 76,635 | 1,795 | | | | 56,053 |
| West Virginia | 3 | 105,102 | 67,181 | 2,975 | 64,206 | 36,253 | 36,253 | | 1,668 | | | | | |
| Wisconsin | 9 | 689,572 | 368,540 | 90,394 | 278,146 | 217,277 | 215,334 | 1,943 | 77,166 | | | | | 26,589 |
| All other states[1] | 25 | 1,237,935 | 739,082 | 85,509 | 653,573 | 291,824 | 258,011 | 33,813 | 186,084 | 4,440 | | 9 | 301 | 16,195 |

[1] Includes states having less than 3 companies in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arkansas, 2; California, 2; Colorado, 2; Connecticut, 2; Delaware, 1; Indiana, 2; Kansas, 1; Kentucky, 2; Louisiana, 1; Maryland, 1; Minnesota, 1; Montana, 1; Nebraska, 1; New Hampshire, 1; New Jersey, 2; Oregon, 1; Tennessee, 2.

TABLE 91.—DETAILED DESCRIPTION OF SERVICE—ELECTRIC LIGHT AND POWER PLANTS OPERATED BY STREET RAILWAY COMPANIES, BY STATES: 1902.

| STATE. | ARC LIGHTING—NUMBER OF LAMPS IN SERVICE. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aggregate. | Total. | | | | Direct current. | | | | Alternating current. | | | | All other. | |
| | | Commercial or private. | | Public. | | Commercial or private. | | Public. | | Commercial or private. | | Public. | | Commercial or private. | Public. |
| | | Open. | Inclosed. | Open. | Inclosed. | Open. | Inclosed. | Open. | Inclosed. | Open. | Inclosed. | Open. | Inclosed. | Open. | Inclosed. | Open. |
| United States | 33,863 | 2,582 | 13,603 | 10,868 | 6,810 | 2,413 | 6,459 | 10,495 | 1,072 | 1 | 7,069 | 8 | 5,738 | 168 | 75 | 365 |
| Alabama | 1,291 | 449 | 442 | 325 | 75 | 449 | 388 | 325 | ..... | ..... | 54 | ..... | 75 | ..... | ..... | ..... |
| Florida | 222 | 103 | 55 | ..... | 64 | 103 | ..... | ..... | ..... | ..... | 55 | ..... | 64 | ..... | ..... | ..... |
| Georgia | 4,347 | 238 | 2,092 | 761 | 1,256 | 238 | 1,294 | 761 | 238 | ..... | 798 | ..... | 1,018 | ..... | ..... | ..... |
| Illinois | 817 | 235 | 328 | ..... | 254 | 235 | 295 | ..... | 254 | ..... | 33 | ..... | ..... | ..... | ..... | ..... |
| Iowa | 1,603 | 133 | 388 | 812 | 270 | 133 | 84 | 812 | 40 | ..... | 304 | ..... | 230 | ..... | ..... | ..... |
| Maine | 431 | 25 | 230 | 115 | 61 | 25 | 115 | 115 | 30 | ..... | 115 | ..... | 31 | ..... | ..... | ..... |
| Michigan | 869 | 30 | 286 | 352 | 201 | 30 | 36 | 352 | ..... | ..... | 250 | ..... | 201 | ..... | ..... | ..... |
| Mississippi | 477 | ..... | 112 | 132 | 233 | ..... | ..... | 132 | ..... | ..... | 112 | ..... | 233 | ..... | ..... | ..... |
| Missouri | 208 | 37 | 5 | 111 | 50 | 37 | ..... | 111 | ..... | ..... | 5 | ..... | 50 | ..... | ..... | ..... |
| New York | 2,594 | 56 | 1,070 | 964 | 504 | 55 | 65 | 964 | ..... | 1 | 1,005 | ..... | 504 | ..... | ..... | ..... |
| North Carolina | 613 | 12 | 174 | 325 | 102 | 12 | ..... | 325 | ..... | ..... | 174 | ..... | 102 | ..... | ..... | ..... |
| Ohio | 2,933 | 24 | 518 | 1,838 | 553 | 24 | 90 | 1,838 | ..... | ..... | 353 | ..... | 553 | ..... | 75 | ..... |
| South Carolina | 693 | ..... | 236 | ..... | 457 | ..... | 37 | ..... | 198 | ..... | 199 | ..... | 259 | ..... | ..... | ..... |
| Virginia | 2,983 | 219 | 1,710 | 757 | 297 | 219 | 933 | 757 | 100 | ..... | 777 | ..... | 197 | ..... | ..... | ..... |
| Washington | 1,854 | 116 | 1,416 | 19 | 303 | 116 | 1,263 | 19 | 121 | ..... | 153 | ..... | 182 | ..... | ..... | ..... |
| West Virginia | 572 | ..... | 70 | 75 | 427 | ..... | ..... | 75 | ..... | ..... | 70 | ..... | 427 | ..... | ..... | ..... |
| Wisconsin | 4,715 | 387 | 1,778 | 1,871 | 679 | 387 | 1,277 | 1,871 | 91 | ..... | 501 | ..... | 588 | ..... | ..... | ..... |
| All other states[1] | 6,646 | 518 | 2,693 | 2,411 | 1,024 | 350 | 582 | 2,088 | ..... | ..... | 2,111 | 8 | 1,024 | 168 | ..... | 365 |

| STATE. | INCANDESCENT LIGHTING—NUMBER OF LAMPS IN SERVICE. | | | | | | | | | STATIONARY MOTOR SERVICE. | | Number of mechanical meters on consumption circuits. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aggregate. | Total. | | 16-candlepower. | | 32-candlepower. | | All other. | | Number of motors of all kinds. | Total capacity in horsepower. | |
| | | Commercial or private. | Public. | Commercial or private. | Public. | Commercial or private. | Public. | Commercial or private. | Public. | | | |
| United States | 1,442,685 | 1,423,659 | 19,026 | 1,313,303 | 13,065 | 31,597 | 1,119 | 78,759 | 4,842 | 10,049 | 35,688 | [2]56,601 |
| Alabama | 50,704 | 50,045 | 659 | 47,705 | 659 | 2,203 | ..... | 137 | ..... | 648 | 936 | 2,606 |
| Florida | 19,872 | 19,541 | 331 | 19,408 | 323 | 127 | 8 | 6 | ..... | 137 | 714 | 880 |
| Georgia | 136,978 | 135,604 | 1,374 | 132,630 | 900 | 1,470 | 30 | 1,504 | 444 | 2,066 | 4,844 | 5,121 |
| Illinois | 42,426 | 42,426 | ..... | 37,883 | ..... | 226 | ..... | 4,317 | ..... | 202 | 611 | 1,475 |
| Iowa | 62,284 | 61,924 | 360 | 57,610 | 60 | 1,830 | 50 | 2,484 | 250 | 549 | 1,479 | 3,338 |
| Maine | 39,443 | 39,379 | 64 | 38,079 | ..... | 300 | 39 | 1,000 | 25 | 129 | 1,011 | 1,139 |
| Michigan | 43,389 | 41,169 | 2,220 | 36,577 | 2,130 | 1,134 | 90 | 3,458 | ..... | 136 | 700 | 1,857 |
| Mississippi | 12,887 | 11,890 | 997 | 11,290 | 997 | 100 | ..... | 500 | ..... | 295 | 198 | 714 |
| Missouri | 66,130 | 66,075 | 55 | 45,000 | 50 | 75 | 5 | 21,000 | ..... | 87 | 119 | 1,553 |
| New York | 100,561 | 98,812 | 1,749 | 86,950 | 691 | 2,257 | 47 | 9,605 | 1,011 | 336 | 2,662 | [2]6,217 |
| North Carolina | 31,742 | 31,498 | 244 | 28,132 | 204 | 423 | 40 | 2,943 | ..... | 105 | 1,544 | 1,273 |
| Ohio | 189,708 | 188,065 | 1,643 | 186,683 | 1,613 | 682 | 20 | 700 | 10 | 513 | 3,589 | 5,813 |
| South Carolina | 24,225 | 24,117 | 108 | 23,517 | 100 | 600 | ..... | ..... | 8 | 689 | 618 | 1,270 |
| Virginia | 65,148 | 64,815 | 333 | 52,595 | 328 | 2,224 | 5 | 9,996 | ..... | 1,960 | 1,467 | 3,100 |
| Washington | 93,247 | 90,483 | 2,764 | 70,667 | 205 | 10,828 | 35 | 8,988 | 2,524 | 587 | 3,720 | 4,838 |
| West Virginia | 23,294 | 23,294 | ..... | 20,984 | ..... | 1,647 | ..... | 663 | ..... | 28 | 121 | 770 |
| Wisconsin | 180,073 | 179,611 | 462 | 170,305 | 337 | 3,646 | 125 | 5,660 | ..... | 87 | 3,711 | 5,403 |
| All other states | 260,574 | 254,911 | 5,663 | 247,288 | 4,468 | 1,825 | 625 | 5,798 | 570 | 1,495 | 7,644 | 9,234 |

[1] Includes states having less than 3 companies in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arkansas, 2; California, 2; Colorado, 2; Connecticut, 2; Delaware, 1; Indiana, 2; Kansas, 1; Kentucky, 2; Louisiana, 1; Maryland, 1; Minnesota, 1; Montana, 1; Nebraska, 1; New Hampshire, 1; New Jersey, 2; Oregon, 1; Tennessee, 2.

[2] Includes 82 chemical.

# GENERAL TABLES

TABLE 92.—AVERAGE NUMBER OF EMPLOYEES AND TOTAL SALARIES

[This table does not include reports for 20 companies

| | STATE. | Number of companies. | SALARIED OFFICIALS AND CLERKS. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | | General officers. | | Other officers, managers, superintendents, etc. | | Clerks. | |
| | | | Average number. | Salaries. | Average number. | Salaries. | Average number. | Salaries. | Average number. | Salaries. |
| 1 | United States | 797 | 7,128 | $7,439,716 | 1,480 | $2,990,745 | 1,327 | $1,819,166 | 4,321 | $2,629,805 |
| 2 | Alabama | 9 | 57 | 65,245 | 12 | 24,701 | 12 | 21,940 | 33 | 18,604 |
| 3 | Arkansas | 7 | 23 | 18,250 | 8 | 9,099 | 6 | 3,642 | 9 | 5,509 |
| 4 | California | 34 | 255 | 309,822 | 48 | 103,628 | 61 | 99,811 | 146 | 106,383 |
| 5 | Colorado | 7 | 74 | 87,737 | 18 | 38,813 | 12 | 18,456 | 44 | 30,468 |
| 6 | Connecticut | 21 | 185 | 221,561 | 56 | 127,904 | 28 | 33,345 | 101 | 60,312 |
| 7 | Delaware | 3 | 15 | 11,581 | 9 | 6,400 | 2 | 2,460 | 4 | 2,721 |
| 8 | Florida | 6 | 37 | 39,981 | 12 | 18,398 | 8 | 9,831 | 17 | 11,752 |
| 9 | Georgia | 10 | 72 | 101,911 | 20 | 46,222 | 18 | 35,070 | 34 | 20,619 |
| 10 | Illinois | 48 | 535 | 669,518 | 97 | 237,995 | 88 | 152,173 | 350 | 279,350 |
| 11 | Indiana | 26 | 176 | 181,167 | 52 | 93,060 | 30 | 35,000 | 94 | 53,107 |
| 12 | Iowa | 22 | 87 | 88,229 | 29 | 47,738 | 13 | 14,623 | 45 | 25,868 |
| 13 | Kansas | 11 | 30 | 25,184 | 17 | 16,590 | 5 | 4,730 | 8 | 3,864 |
| 14 | Kentucky | 12 | 59 | 73,259 | 25 | 44,832 | 11 | 11,099 | 23 | 17,328 |
| 15 | Louisiana | 8 | 62 | 86,723 | 20 | 53,567 | 6 | 8,649 | 36 | 24,507 |
| 16 | Maine | 19 | 65 | 57,218 | 20 | 22,998 | 11 | 14,064 | 34 | 20,156 |
| 17 | Maryland | 10 | 156 | 126,742 | 14 | 40,909 | 10 | 13,499 | 132 | 72,334 |
| 18 | Massachusetts | 74 | 896 | 912,549 | 131 | 266,635 | 236 | 273,777 | 529 | 372,137 |
| 19 | Michigan | 24 | 256 | 262,802 | 53 | 125,835 | 49 | 58,094 | 154 | 78,873 |
| 20 | Minnesota | 5 | 88 | 110,755 | 9 | 43,234 | 15 | 29,995 | 64 | 37,526 |
| 21 | Mississippi | 5 | 21 | 17,699 | 11 | 12,959 | 1 | 300 | 9 | 4,440 |
| 22 | Missouri | 16 | 272 | 340,013 | 33 | 136,140 | 86 | 103,116 | 153 | 100,757 |
| 23 | Montana | 5 | 14 | 20,825 | 5 | 11,150 | 1 | 1,600 | 8 | 8,075 |
| 24 | Nebraska | 4 | 22 | 26,610 | 10 | 17,007 | 1 | 1,875 | 11 | 7,728 |
| 25 | New Hampshire | 7 | 25 | 20,588 | 8 | 9,088 | 5 | 5,924 | 12 | 5,576 |
| 26 | New Jersey | 25 | 276 | 251,795 | 53 | 107,036 | 50 | 57,763 | 173 | 86,996 |
| 27 | New York | 96 | 1,221 | 1,127,405 | 188 | 428,451 | 136 | 203,610 | 897 | 495,344 |
| 28 | North Carolina | 7 | 42 | 28,767 | 15 | 14,275 | 5 | 6,625 | 22 | 7,867 |
| 29 | Ohio | 62 | 563 | 541,576 | 131 | 269,697 | 91 | 118,452 | 341 | 153,427 |
| 30 | Oregon | 6 | 35 | 44,207 | 10 | 20,783 | 8 | 10,965 | 17 | 12,509 |
| 31 | Pennsylvania | 97 | 771 | 799,725 | 152 | 222,921 | 183 | 297,497 | 436 | 279,307 |
| 32 | Rhode Island | 7 | 37 | 44,456 | 10 | 25,777 | 4 | 3,324 | 23 | 15,355 |
| 33 | South Carolina | 7 | 40 | 31,212 | 13 | 17,260 | 12 | 9,386 | 15 | 4,566 |
| 34 | Tennessee | 8 | 49 | 64,872 | 16 | 32,075 | 11 | 18,054 | 22 | 14,743 |
| 35 | Texas | 17 | 66 | 92,603 | 25 | 56,623 | 13 | 16,154 | 28 | 19,826 |
| 36 | Utah | 3 | 11 | 15,600 | 4 | 9,900 | 3 | 3,260 | 4 | 2,440 |
| 37 | Vermont | 9 | 25 | 13,733 | 13 | 6,046 | 6 | 5,720 | 6 | 1,967 |
| 38 | Virginia | 16 | 106 | 78,383 | 47 | 42,152 | 18 | 17,706 | 41 | 18,525 |
| 39 | Washington | 8 | 89 | 109,143 | 24 | 50,775 | 9 | 19,580 | 56 | 38,788 |
| 40 | West Virginia | 8 | 46 | 46,277 | 13 | 26,284 | 10 | 6,820 | 23 | 13,173 |
| 41 | Wisconsin | 17 | 173 | 146,346 | 30 | 53,591 | 28 | 32,443 | 115 | 60,312 |
| 42 | All other states[1] | 11 | 96 | 127,647 | 19 | 52,247 | 25 | 38,734 | 52 | 36,666 |
| 43 | Hawaii and Porto Rico | 5 | 22 | 25,179 | 9 | 8,959 | 2 | 5,800 | 11 | 10,420 |

[1] Includes states having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico, 1.

AND WAGES, OPERATING COMPANIES, BY STATES: 1902.

which failed to furnish this information.]

| WAGE-EARNERS. | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | Foremen. | | Inspectors. | | Conductors. | | Motormen. | | Starters. | | Watchmen. | | |
| Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | |
| 133,641 | $80,770,449 | 1,782 | $1,518,400 | 1,095 | $852,629 | 40,141 | $24,025,204 | 40,003 | $24,617,155 | 960 | $721,031 | 921 | $497,103 | 1 |
| 921 | 481,045 | 18 | 16,044 | 20 | 15,215 | 208 | 105,877 | 217 | 112,639 | ..... | ..... | 6 | 2,190 | 2 |
| 225 | 112,665 | 2 | 1,621 | ..... | ..... | 55 | 21,905 | 85 | 44,175 | 3 | 1,707 | 1 | 480 | 3 |
| 5,187 | 3,588,889 | 118 | 114,934 | 28 | 25,975 | 1,769 | 1,141,482 | 1,776 | 1,147,317 | 24 | 22,720 | 25 | 16,673 | 4 |
| 979 | 734,519 | 12 | 12,870 | 8 | 7,479 | 296 | 224,862 | 302 | 231,261 | ..... | ..... | 2 | 1,104 | 5 |
| 2,586 | 1,462,800 | 48 | 38,262 | 15 | 10,654 | 780 | 442,579 | 778 | 442,425 | 15 | 12,069 | 26 | 15,146 | 6 |
| 236 | 166,104 | 4 | 2,820 | 1 | 913 | 82 | 60,080 | 82 | 60,080 | 3 | 2,801 | 1 | 639 | 7 |
| 374 | 162,781 | 9 | 6,206 | 6 | 4,097 | 100 | 39,399 | 99 | 37,851 | 3 | 1,426 | 6 | 3,421 | 8 |
| 1,971 | 755,355 | 15 | 9,871 | 20 | 12,923 | 498 | 158,480 | 512 | 170,243 | 8 | 6,298 | 4 | 1,396 | 9 |
| 11,057 | 7,267,270 | 120 | 105,138 | 37 | 28,520 | 3,588 | 2,444,620 | 2,738 | 2,094,870 | 41 | 33,273 | 41 | 21,919 | 10 |
| 2,448 | 1,289,718 | 70 | 47,150 | 12 | 10,271 | 637 | 332,116 | 674 | 364,174 | 4 | 2,660 | 16 | 5,970 | 11 |
| 1,516 | 799,671 | 30 | 25,578 | 17 | 10,700 | 377 | 177,629 | 443 | 230,912 | 5 | 3,720 | 8 | 3,699 | 12 |
| 275 | 143,623 | 5 | 3,648 | 3 | 1,942 | 57 | 27,020 | 102 | 53,381 | ..... | ..... | 5 | 2,452 | 13 |
| 1,331 | 678,670 | 25 | 18,138 | 29 | 20,249 | 286 | 99,084 | 557 | 288,499 | 14 | 10,220 | 14 | 10,285 | 14 |
| 1,646 | 1,061,875 | 22 | 22,138 | 18 | 14,310 | 525 | 346,139 | 538 | 351,266 | 8 | 6,180 | 18 | 10,934 | 15 |
| 969 | 526,062 | 4 | 3,562 | ..... | ..... | 258 | 141,941 | 259 | 142,135 | 8 | 3,660 | 13 | 7,536 | 16 |
| 2,883 | 1,418,219 | 31 | 21,601 | ..... | ..... | 1,005 | 443,261 | 933 | 446,404 | 32 | 20,160 | 29 | 12,549 | 17 |
| 13,998 | 8,980,513 | 195 | 186,795 | 114 | 90,266 | 4,084 | 2,660,947 | 4,001 | 2,711,885 | 192 | 140,436 | 130 | 72,231 | 18 |
| 3,192 | 2,003,174 | 58 | 45,791 | 51 | 34,229 | 895 | 592,063 | 951 | 631,592 | 50 | 35,577 | 30 | 14,745 | 19 |
| 1,509 | 979,044 | 42 | 35,218 | 7 | 5,400 | 475 | 299,127 | 482 | 294,234 | 8 | 5,220 | 3 | 1,643 | 20 |
| 137 | 72,178 | 3 | 1,865 | 2 | 1,105 | 28 | 15,229 | 32 | 17,351 | 1 | 480 | 1 | 639 | 21 |
| 5,186 | 3,432,170 | 56 | 43,365 | 13 | 9,960 | 1,767 | 1,109,345 | 1,740 | 1,100,274 | 26 | 18,375 | 23 | 12,901 | 22 |
| 178 | 172,643 | 5 | 6,235 | ..... | ..... | 60 | 57,842 | 55 | 51,886 | ..... | ..... | 1 | 1,148 | 23 |
| 527 | 350,958 | 9 | 7,562 | 2 | 1,560 | 172 | 119,273 | 187 | 119,695 | 1 | 780 | 5 | 2,664 | 24 |
| 357 | 208,823 | 4 | 3,505 | 2 | 1,601 | 123 | 67,679 | 123 | 67,630 | 5 | 2,051 | 10 | 5,822 | 25 |
| 3,880 | 2,370,078 | 71 | 63,230 | 85 | 68,270 | 1,237 | 745,342 | 1,218 | 753,769 | 90 | 69,710 | 40 | 21,240 | 26 |
| 33,192 | 19,800,755 | 205 | 179,159 | 316 | 261,568 | 9,661 | 5,528,938 | 9,204 | 5,796,023 | 262 | 208,182 | 173 | 98,872 | 27 |
| 376 | 129,286 | 10 | 7,292 | 2 | 1,200 | 94 | 29,088 | 95 | 29,762 | 3 | 1,620 | 5 | 2,053 | 28 |
| 9,451 | 5,475,397 | 155 | 124,191 | 117 | 80,507 | 2,910 | 1,663,807 | 3,019 | 1,761,552 | 50 | 35,425 | 42 | 22,547 | 29 |
| 490 | 394,056 | 12 | 14,480 | 1 | 900 | 152 | 126,473 | 155 | 126,626 | ..... | ..... | 8 | 5,465 | 30 |
| 15,721 | 9,286,237 | 168 | 146,974 | 94 | 75,386 | 5,059 | 3,066,195 | 5,479 | 3,074,740 | 57 | 41,984 | 146 | 73,527 | 31 |
| 1,609 | 1,099,423 | 29 | 27,005 | 15 | 12,770 | 424 | 304,091 | 419 | 300,305 | 6 | 5,017 | 20 | 12,462 | 32 |
| 372 | 147,979 | 16 | 12,395 | 4 | 2,920 | 113 | 37,981 | 113 | 38,277 | 1 | 455 | 5 | 2,100 | 33 |
| 1,205 | 583,878 | 24 | 19,986 | 20 | 12,333 | 385 | 164,145 | 399 | 176,851 | 4 | 2,400 | 12 | 4,200 | 34 |
| 929 | 508,475 | 22 | 18,436 | 3 | 2,700 | 231 | 129,006 | 349 | 182,270 | 4 | 2,712 | 7 | 3,872 | 35 |
| 285 | 197,032 | 3 | 3,120 | 2 | 1,200 | 90 | 65,506 | 103 | 75,059 | 2 | 1,920 | 2 | 1,170 | 36 |
| 165 | 97,823 | 7 | 4,920 | 1 | 641 | 55 | 33,683 | 56 | 34,109 | ..... | ..... | 4 | 2,107 | 37 |
| 960 | 423,319 | 30 | 17,548 | 5 | 3,185 | 259 | 114,522 | 247 | 114,326 | 2 | 1,339 | 8 | 3,060 | 38 |
| 1,250 | 898,737 | 44 | 45,303 | 14 | 14,760 | 349 | 222,103 | 353 | 222,067 | ..... | ..... | 4 | 2,580 | 39 |
| 621 | 352,003 | 13 | 9,890 | 2 | 1,200 | 195 | 110,890 | 204 | 118,573 | 4 | 2,530 | 4 | 1,990 | 40 |
| 2,042 | 1,300,421 | 61 | 39,318 | 6 | 2,980 | 406 | 269,268 | 477 | 310,462 | 4 | 2,520 | 12 | 6,023 | 41 |
| 1,455 | 896,781 | 7 | 5,236 | 3 | 2,700 | 451 | 286,237 | 447 | 290,185 | 20 | 15,404 | 11 | 5,649 | 42 |
| 381 | 177,620 | 7 | 5,540 | 1 | 1,500 | 78 | 35,238 | 116 | 58,257 | ..... | ..... | 5 | 1,210 | 43 |

TABLE 92.—AVERAGE NUMBER OF EMPLOYEES AND TOTAL SALARIES

| | STATE. | WAGE-EARNERS—continued. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Switchmen. | | Road and track men. | | Hostlers, stablemen, etc. | | Linemen. | |
| | | Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | Average number. | Wages. |
| 1 | United States | 1,198 | $728,975 | 11,474 | $5,511,425 | 1,345 | $813,425 | 2,288 | $1,553,478 |
| 2 | Alabama | ..... | ..... | 63 | 22,726 | 15 | 7,840 | 21 | 14,217 |
| 3 | Arkansas | ..... | ..... | 19 | 8,548 | 6 | 2,310 | 4 | 2,541 |
| 4 | California | 39 | 33,278 | 399 | 261,250 | 77 | 50,442 | 53 | 45,008 |
| 5 | Colorado | 4 | 2,400 | 130 | 72,128 | 2 | 1,620 | 40 | 35,143 |
| 6 | Connecticut | 13 | 6,079 | 225 | 145,569 | 10 | 5,810 | 98 | 61,342 |
| 7 | Delaware | 2 | 1,278 | 17 | 5,575 | ..... | ..... | 5 | 3,325 |
| 8 | Florida | ..... | ..... | 34 | 8,301 | 1 | 468 | 16 | 11,174 |
| 9 | Georgia | 1 | 606 | 384 | 100,512 | 3 | 1,054 | 82 | 42,475 |
| 10 | Illinois | 96 | 62,457 | 603 | 346,333 | 107 | 59,912 | 97 | 71,274 |
| 11 | Indiana | 2 | 546 | 326 | 134,931 | 47 | 25,346 | 69 | 41,070 |
| 12 | Iowa | ..... | ..... | 201 | 91,124 | 15 | 7,874 | 59 | 38,300 |
| 13 | Kansas | ..... | ..... | 46 | 19,434 | 2 | 575 | 4 | 2,340 |
| 14 | Kentucky | 6 | 3,285 | 165 | 78,309 | 11 | 6,022 | 26 | 18,392 |
| 15 | Louisiana | 10 | 2,759 | 86 | 42,810 | 12 | 7,020 | 23 | 19,303 |
| 16 | Maine | ..... | ..... | 158 | 66,704 | 36 | 19,069 | 25 | 14,533 |
| 17 | Maryland | 1 | 450 | 254 | 96,749 | 11 | 5,940 | 47 | 24,919 |
| 18 | Massachusetts | 162 | 98,153 | 889 | 462,163 | 105 | 69,724 | 239 | 168,390 |
| 19 | Michigan | 10 | 4,415 | 344 | 167,454 | 9 | 4,404 | 58 | 37,981 |
| 20 | Minnesota | 12 | 5,760 | 63 | 40,340 | 8 | 4,560 | 17 | 11,514 |
| 21 | Mississippi | ..... | ..... | 19 | 5,708 | ..... | ..... | 6 | 4,432 |
| 22 | Missouri | 10 | 4,600 | 301 | 159,606 | 32 | 18,629 | 42 | 32,242 |
| 23 | Montana | ..... | ..... | 19 | 17,296 | 4 | 3,452 | 7 | 3,619 |
| 24 | Nebraska | ..... | ..... | 21 | 9,048 | 1 | 600 | 4 | 2,844 |
| 25 | New Hampshire | ..... | ..... | 35 | 18,099 | 3 | 1,695 | 9 | 5,649 |
| 26 | New Jersey | 45 | 18,890 | 243 | 108,360 | 38 | 27,034 | 68 | 44,015 |
| 27 | New York | 591 | 398,921 | 2,778 | 1,411,386 | 546 | 356,287 | 430 | 320,269 |
| 28 | North Carolina | 2 | 363 | 60 | 14,799 | 2 | 280 | 25 | 8,929 |
| 29 | Ohio | 44 | 19,061 | 928 | 407,765 | 43 | 21,207 | 193 | 132,583 |
| 30 | Oregon | ..... | ..... | 52 | 34,156 | 1 | 600 | 11 | 8,443 |
| 31 | Pennsylvania | 81 | 39,646 | 1,521 | 677,117 | 142 | 77,558 | 241 | 145,061 |
| 32 | Rhode Island | 16 | 8,830 | 211 | 118,439 | 3 | 1,615 | 26 | 20,078 |
| 33 | South Carolina | 1 | 300 | 35 | 9,386 | 2 | 468 | 12 | 5,836 |
| 34 | Tennessee | 1 | 365 | 141 | 47,232 | 8 | 3,291 | 22 | 12,214 |
| 35 | Texas | ..... | ..... | 131 | 55,077 | 8 | 3,516 | 22 | 13,832 |
| 36 | Utah | ..... | ..... | 47 | 26,338 | 1 | 630 | 3 | 3,000 |
| 37 | Vermont | ..... | ..... | 19 | 8,874 | 3 | 1,652 | 3 | 1,688 |
| 38 | Virginia | 9 | 2,206 | 71 | 21,355 | 3 | 1,213 | 34 | 16,641 |
| 39 | Washington | ..... | ..... | 121 | 86,362 | 5 | 3,780 | 68 | 58,885 |
| 40 | West Virginia | ..... | ..... | 62 | 27,722 | 4 | 1,800 | 14 | 9,094 |
| 41 | Wisconsin | 1 | 365 | 77 | 39,465 | 7 | 3,263 | 48 | 29,515 |
| 42 | All other states | 39 | 18,972 | 76 | 36,875 | 12 | 4,865 | 17 | 11,368 |
| 43 | Hawaii and Porto Rico | 1 | 250 | 44 | 17,219 | 47 | 14,111 | 7 | 2,608 |

AND WAGES, OPERATING COMPANIES, BY STATES: 1902—Continued.

| WAGE-EARNERS—continued. | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Engineers. | | Dynamo and switchboard men. | | Electricians. | | Firemen. | | Mechanics. | | Lamp trimmers. | | Other employees. | | |
| Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | Average number. | Wages. | |
| 1,751 | $1,527,793 | 1,167 | $761,304 | 1,150 | $901,524 | 2,694 | $1,735,647 | 9,197 | $6,312,119 | 338 | $197,254 | 16,137 | $8,495,983 | 1 |
| 12 | 10,960 | 9 | 4,790 | 1 | 900 | 16 | 8,210 | 56 | 39,886 | 10 | 4,556 | 249 | 114,995 | 2 |
| 12 | 6,930 | 2 | 1,682 | ..... | ..... | 16 | 6,233 | 14 | 12,069 | 1 | 500 | 5 | 1,964 | 3 |
| 56 | 64,573 | 48 | 38,433 | 54 | 47,885 | 101 | 74,333 | 437 | 354,352 | 17 | 14,382 | 166 | 135,852 | 4 |
| 21 | 24,024 | 10 | 9,988 | 6 | 6,439 | 37 | 30,737 | 37 | 28,601 | 4 | 3,120 | 68 | 42,743 | 5 |
| 57 | 51,621 | 15 | 10,400 | 18 | 13,144 | 54 | 38,088 | 163 | 105,406 | 15 | 9,210 | 106 | 55,046 | 6 |
| 8 | 7,740 | ..... | ..... | 1 | 912 | 10 | 6,861 | 10 | 8,005 | ..... | ..... | 10 | 5,075 | 7 |
| 11 | 9,857 | 5 | 3,098 | 1 | 551 | 10 | 5,278 | 17 | 7,912 | 3 | 1,557 | 53 | 22,185 | 8 |
| 23 | 20,785 | 24 | 10,659 | 9 | 6,906 | 30 | 13,156 | 33 | 19,585 | 28 | 15,409 | 302 | 165,047 | 9 |
| 104 | 92,442 | 183 | 109,655 | 67 | 47,711 | 191 | 124,463 | 732 | 498,597 | 14 | 7,405 | 2,348 | 1,118,681 | 10 |
| 54 | 36,362 | 27 | 18,987 | 9 | 7,660 | 52 | 27,631 | 219 | 122,286 | 6 | 3,391 | 224 | 109,167 | 11 |
| 44 | 32,957 | 5 | 2,820 | 21 | 15,330 | 67 | 36,182 | 121 | 78,901 | 13 | 6,456 | 90 | 37,489 | 12 |
| 12 | 9,400 | 1 | 720 | 4 | 3,780 | 10 | 5,852 | 10 | 6,680 | 1 | 600 | 13 | 5,799 | 13 |
| 20 | 16,041 | 2 | 1,120 | 13 | 7,752 | 32 | 17,039 | 98 | 67,544 | 7 | 4,290 | 26 | 12,401 | 14 |
| 23 | 26,340 | 31 | 21,016 | 4 | 3,240 | 25 | 16,780 | 97 | 79,533 | 1 | 420 | 205 | 111,687 | 15 |
| 32 | 23,862 | 3 | 1,200 | 46 | 33,528 | 29 | 15,900 | 39 | 19,993 | 1 | 550 | 58 | 31,889 | 16 |
| 28 | 23,606 | 12 | 8,640 | 10 | 6,840 | 40 | 26,531 | 252 | 169,248 | ..... | ..... | 198 | 111,321 | 17 |
| 196 | 181,589 | 65 | 49,493 | 80 | 54,817 | 242 | 153,939 | 1,532 | 1,020,518 | ..... | ..... | 1,772 | 859,667 | 18 |
| 59 | 52,190 | 69 | 43,270 | 23 | 18,624 | 67 | 41,636 | 273 | 165,002 | 7 | 4,027 | 238 | 110,174 | 19 |
| 15 | 13,145 | 14 | 10,884 | 17 | 10,812 | 24 | 10,258 | 98 | 67,595 | 5 | 3,660 | 219 | 159,674 | 20 |
| 7 | 6,190 | 2 | 913 | 2 | 2,100 | 10 | 5,633 | 5 | 3,148 | 4 | 1,932 | 15 | 5,458 | 21 |
| 59 | 51,119 | 24 | 16,912 | 19 | 14,715 | 112 | 73,824 | 271 | 224,502 | 4 | 2,280 | 687 | 539,501 | 22 |
| 3 | 4,927 | 3 | 2,706 | 1 | 854 | 4 | 4,407 | 8 | 9,932 | 2 | 900 | 6 | 7,437 | 23 |
| 4 | 3,225 | 1 | 900 | 3 | 2,920 | 17 | 11,190 | 52 | 34,220 | ..... | ..... | 48 | 34,477 | 24 |
| 10 | 9,035 | ..... | ..... | 4 | 3,169 | 6 | 3,735 | 19 | 12,447 | 1 | 730 | 3 | 976 | 25 |
| 37 | 31,294 | 41 | 27,924 | 25 | 21,477 | 67 | 36,367 | 423 | 245,448 | 18 | 10,900 | 134 | 76,808 | 26 |
| 209 | 192,207 | 302 | 182,213 | 320 | 291,034 | 578 | 426,410 | 1,660 | 1,263,288 | 45 | 30,036 | 5,912 | 2,860,942 | 27 |
| 19 | 14,050 | 2 | 840 | 3 | 1,800 | 19 | 6,268 | 8 | 2,791 | 7 | 2,640 | 20 | 5,511 | 28 |
| 168 | 146,168 | 110 | 73,611 | 79 | 55,225 | 231 | 141,326 | 664 | 441,032 | 48 | 26,369 | 650 | 323,031 | 29 |
| 9 | 9,364 | 2 | 1,440 | 2 | 2,280 | 16 | 11,420 | 43 | 36,874 | 2 | 1,186 | 24 | 14,349 | 30 |
| 244 | 188,610 | 49 | 36,701 | 213 | 144,622 | 351 | 218,184 | 1,228 | 775,201 | 1 | 493 | 647 | 504,238 | 31 |
| 16 | 16,271 | 2 | 1,824 | 15 | 11,077 | 27 | 18,410 | 87 | 55,285 | ..... | ..... | 293 | 185,944 | 32 |
| 7 | 6,660 | 7 | 4,112 | 3 | 3,250 | 8 | 4,214 | 10 | 5,690 | 4 | 2,378 | 31 | 11,607 | 33 |
| 15 | 13,573 | 3 | 1,096 | ..... | ..... | 19 | 6,988 | 67 | 33,227 | 6 | 3,275 | 79 | 32,703 | 34 |
| 16 | 14,270 | 1 | 600 | 8 | 5,903 | 18 | 10,699 | 51 | 34,892 | ..... | ..... | 58 | 25,690 | 35 |
| 2 | 1,620 | ..... | ..... | ..... | ..... | 2 | 1,116 | 17 | 10,698 | ..... | ..... | 11 | 5,655 | 36 |
| 4 | 2,849 | ..... | ..... | 1 | 800 | 2 | 1,140 | 3 | 1,806 | ..... | ..... | 7 | 3,554 | 37 |
| 36 | 26,791 | 13 | 6,529 | 10 | 7,537 | 29 | 12,962 | 31 | 15,539 | 14 | 7,081 | 159 | 51,485 | 38 |
| 26 | 26,895 | 25 | 20,560 | 20 | 19,270 | 49 | 35,880 | 73 | 63,744 | 11 | 7,600 | 88 | 68,928 | 39 |
| 28 | 20,608 | 6 | 2,880 | 4 | 3,860 | 23 | 13,414 | 19 | 11,358 | 4 | 2,100 | 35 | 14,094 | 40 |
| 31 | 25,298 | 38 | 24,928 | 14 | 9,767 | 37 | 21,713 | 108 | 84,656 | 34 | 17,821 | 681 | 413,064 | 41 |
| 14 | 12,350 | 11 | 7,759 | 20 | 13,533 | 16 | 11,290 | 112 | 74,678 | ..... | ..... | 199 | 99,680 | 42 |
| 7 | 7,717 | ..... | ..... | 1 | 1,320 | 5 | 2,895 | 27 | 17,133 | 7 | 1,916 | 28 | 10,706 | 43 |

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | PERIOD COVERED BY REPORT. To— | LENGTH, SINGLE-TRACK MILES. Owned. | LENGTH, SINGLE-TRACK MILES. Operated. | CAPITAL STOCK. Total par value. Authorized. | CAPITAL STOCK. Total par value. Issued. |
|---|---|---|---|---|---|---|---|---|
| | UNITED STATES | | | | [1]22,576.99 | [2]23,134.44 | $1,529,199,589 | $1,315,572,960 |
| | ALABAMA. | | | | | | | |
| | Total for state | | | | 204.72 | 204.72 | 7,736,900 | 7,696,900 |
| 1 | Anniston, Oxford | Anniston Electric and Gas Co | Dec. 1,1901 | Nov. 30,1902 | 10.00 | 10.00 | 136,000 | 136,000 |
| 2 | Birmingham, Bessemer, Pratt City | Birmingham Railway, Light and Power Co. | July 1,1901 | June 30,1902 | 110.00 | 110.00 | 4,500,000 | 4,500,000 |
| 3 | Decatur, New Decatur | Decatur Street Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 3.03 | 3.03 | 100,000 | 100,000 |
| 4 | Gadsden, Alabama City, Attalla | Alabama City, Gadsden and Attalla Rwy. Co. | Aug. 1,1901 | July 31,1902 | 6.70 | 6.70 | 100,000 | 60,000 |
| 5 | Huntsville, Dallas | Huntsville Railway, Light and Power Co. | July 1,1901 | June 30,1902 | 4.62 | 4.62 | 150,000 | 150,000 |
| 6 | Mobile and vicinity | Mobile Light and R. R. Co | Sept. 1,1901 | Aug. 31,1902 | 37.50 | 37.50 | 2,250,000 | 2,250,000 |
| 7 | Montgomery | Montgomery Street Rwy. Co | Aug. 1,1901 | July 31,1902 | 20.00 | 20.00 | 350,000 | 350,000 |
| 8 | Selma | Selma Street and Suburban Rwy. Co | July 1,1901 | June 30,1902 | 5.87 | 5.87 | 125,000 | 125,000 |
| 9 | Tuscaloosa | Tuscaloosa Belt Rwy. Co | July 1,1901 | June 30,1902 | 7.00 | 7.00 | 25,900 | 25,900 |
| | ARIZONA. | | | | | | | |
| | Total for territory | | | | 17.10 | 17.10 | 150,000 | 127,800 |
| 1 | Phoenix | Phoenix Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 12.00 | 12.00 | [9]100,000 | [9]100,000 |
| 2 | Tucson | Tucson Street Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 5.10 | 5.10 | 50,000 | 27,800 |
| | ARKANSAS. | | | | | | | |
| | Total for state | | | | [10]51.33 | [10]51.33 | 1,065,300 | 885,300 |
| 1 | Eureka Springs | Citizens Electric Co | Apr. 1,1902 | Dec. 31,1902 | 3.17 | 3.17 | 27,500 | 27,500 |
| 2 | Fort Smith | Fort Smith Traction, Light and Power Co. | July 1,1901 | June 30,1902 | 7.57 | 7.57 | 200,000 | 200,000 |
| 3 | Fort Smith, Van Buren | Fort Smith and Van Buren Light and Transit Co. | July 1,1901 | June 30,1902 | 1.36 | 1.36 | 33,000 | 33,000 |
| 4 | Hot Springs | Hot Springs Street R. R. Co | Jan. 1,1902 | Sept. 30,1902 | 9.28 | 9.28 | 100,000 | 100,000 |
| 5 | Little Rock | Little Rock Traction and Electric Co | July 1,1901 | June 30,1902 | 20.70 | 20.70 | 500,000 | 500,000 |
| 6 | Pine Bluff | Citizens Light and Transit Co | Feb. 11,1902 | Nov. 30,1902 | 7.75 | 7.75 | 200,000 | 20,000 |
| 7 | Texarkana | Texarkana Rwy. Co | July 1,1901 | June 30,1902 | [13]2.66 | [13]2.66 | [14]4,800 | [14]4,800 |
| | CALIFORNIA. | | | | | | | |
| | Total for state | | | | 829.10 | 839.95 | 51,392,434 | 46,022,099 |
| 1 | Bakersfield, Kern | Bakersfield and Kern Electric Rwy. Co | Feb. 21,1901 | Feb. 20,1902 | 2.15 | 2.15 | 250,000 | 45,000 |
| 2 | Fresno | Fresno City, Belmont and Yosemite R. R. Co. | Jan. 1,1901 | Dec. 31,1901 | 2.50 | 2.50 | 2,500,000 | 31,225 |
| 3 | .....do | Fresno R. R. Co | Jan. 1,1901 | Dec. 31,1901 | 2.90 | 2.90 | 200,000 | 20,550 |
| 4 | Grass Valley, Nevada City | Nevada County Traction Co | Oct. 1,1901 | Sept. 30,1902 | 5.10 | 5.10 | 100,000 | 100,000 |
| 5 | Los Angeles | Los Angeles Electric Incline Rwy | Jan. 1,1902 | Dec. 31,1902 | .14 | .14 | 60,000 | 60,000 |
| 6 | .....do | Los Angeles Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 94.82 | 99.71 | 5,000,000 | 5,000,000 |
| 7 | Los Angeles, Pasadena, South Pasadena. | Los Angeles and Pasadena Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 31.86 | 33.74 | 1,000,000 | 1,000,000 |
| 8 | Los Angeles, Santa Monica, Redondo and vicinity. | Los Angeles Pacific R. R. Co | July 1,1901 | June 30,1902 | 87.48 | 87.48 | 2,500,000 | 1,500,000 |
| 9 | Los Angeles, Santa Ana, Orange | Pacific Electric Rwy. Co. (of Arizona) | Jan. 1,1901 | Dec. 31,1901 | 11.34 | 11.68 | 200,000 | 200,000 |
| 10 | Los Angeles | Los Angeles Traction Co | Sept. 1,1901 | Aug. 31,1902 | 26.00 | 29.00 | 500,000 | 500,000 |
| 11 | Marysville, Yuba City | Marysville and Yuba City Street R. R. Co. | May 1,1901 | Apr. 30,1902 | 4.23 | 4.23 | 50,000 | 20,000 |
| 12 | Monrovia | Monrovia Street Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 1.50 | 1.50 | [14]8,000 | [14]8,000 |
| 13 | Monterey | Monterey and Pacific Grove Street Rwy. Co. | July 1,1901 | June 30,1902 | 4.15 | 4.15 | 180,000 | 90,000 |
| 14 | Oakland, Alameda, Berkeley, Hayward, Emeryville. | Oakland Transit Consolidated Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 122.80 | 122.80 | 6,900,000 | 6,900,000 |
| 15 | Ontario | Ontario and San Antonio Heights Rwy. Co. | June 1,1901 | May 31,1902 | 8.00 | 8.00 | 250,000 | 250,000 |
| 16 | Pasadena | Pasadena and Mt. Lowe Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 6.64 | 6.64 | 600,000 | 600,000 |
| 17 | Paso Robles | Paso Robles Street Car Co | Aug. 1,1901 | July 31,1902 | 2.50 | 2.50 | [14]8,000 | [14]8,000 |
| 18 | Petaluma | Petaluma Street Rwy. Co | Dec. 1,1901 | Nov. 30,1902 | 1.81 | 1.81 | ..... | ..... |
| 19 | Pomona | Pomona Street Rwy. Co | July 1,1901 | June 30,1902 | 2.56 | 2.56 | 50,000 | 50,000 |
| 20 | Redlands | Redlands Street Rwy. Co | July 1,1901 | June 30,1902 | 7.27 | 7.27 | 150,000 | 150,000 |
| 21 | Riverside | Riverside and Arlington Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 9.52 | 9.52 | 200,000 | 81,200 |
| 22 | Sacramento | Sacramento Electric, Gas and Rwy. Co | Feb. 1,1901 | Jan. 31,1902 | 23.50 | 23.50 | 2,500,000 | 1,852,500 |
| 23 | San Bernardino, Colton | San Bernardino Valley Traction Co | Mar. 1,1902 | Feb. 28,1903 | 7.62 | 7.62 | 500,000 | 500,000 |
| 24 | San Diego | San Diego Electric Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 16.60 | 16.60 | 500,000 | 500,000 |
| 25 | San Francisco | Geary Street, Park and Ocean R. R. Co | July 1,1901 | June 30,1902 | 7.68 | 8.42 | 1,000,000 | 1,000,000 |
| 26 | .....do | California Street Cable R. R. Co | July 1,1901 | June 30,1902 | 10.86 | 10.86 | 1,000,000 | 1,000,000 |
| 27 | .....do | Presidio and Ferries R. R. Co | Jan. 24,1901 | Jan. 23,1902 | 9.01 | 9.01 | 1,000,000 | 1,000,000 |
| 28 | San Francisco, San Mateo | United Railroads of San Francisco | July 1,1901 | June 30,1902 | 248.95 | 248.95 | 22,150,000 | 21,857,990 |
| 29 | San Jose, Willow Glen | San Jose R. R. Co | Jan. 1,1902 | Dec. 31,1902 | 15.16 | 15.16 | [14]235,934 | [14]235,934 |
| 30 | San Jose, Santa Clara | San Jose and Santa Clara R. R. Co | Jan. 1,1902 | Dec. 31,1902 | 18.12 | 18.12 | 500,000 | 500,000 |
| 31 | Santa Barbara | Santa Barbara Consolidated Rwy. Co | Dec. 1,1901 | Nov. 30,1902 | 8.50 | 8.50 | 250,000 | 250,000 |
| 32 | Santa Cruz | Santa Cruz Electric Rwy. Co | July 1,1901 | June 30,1902 | 5.67 | 5.67 | 500,000 | 500,000 |
| 33 | .....do | East Santa Cruz Street R. R. Co | Jan. 1,1902 | Dec. 31,1902 | 2.85 | 2.85 | [14]27,000 | [14]27,000 |
| 34 | Santa Rosa | Santa Rosa Street Rwy. Co.[18] | Jan. 1,1902 | Dec. 31,1902 | 7.33 | 7.33 | [14]23,500 | [14]23,500 |
| 35 | Stockton | Stockton Electric R. R. Co | Jan. 1,1901 | Dec. 31,1901 | 11.98 | 11.98 | 500,000 | 161,200 |

[1] Includes 4.20 miles lying outside of the United States. (See Maine and Texas.)
[2] Exclusive of 15.95 miles shown in "owned and leased," Table 94, of which 11.48 miles is track duplicated in reports of different companies, and 4.47 miles is owned but not operated; but including 4.20 miles lying outside of the United States.
[3] Capital reported for 980 companies only, and represents 22,389.04 miles of track owned by street-railway companies.
[4] Exclusive of $152,513,997, investments other than street railways and electric-light plants owned.
[5] Exclusive of $949,116, investments other than street railways and electric-light plants owned.
[6] Includes electric-light plant and other investments.
[7] Exclusive of $944,195, investments other than street railways and electric-light plants owned.
[8] Includes electric-light plant.
[9] Not reported; obtained from street-railway journals and directories.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $1,355,920,056 | $1,187,642,781 | ..... | $28,737,887 | $173,279,533 | $127,930,179 | ..... | $4,301,284 | $1,341,429,727 | $992,709,139 | ..... | [3]$2,308,282,099 | [4]$96,287 | |
| 6,386,900 | 6,346,900 | ..... | ..... | 1,350,000 | 1,350,000 | ..... | 81,000 | 8,594,000 | 6,678,500 | ..... | 14,375,400 | [5]65,584 | |
| 136,000 | 136,000 | ..... | ..... | ..... | ..... | ..... | ..... | 159,000 | 129,500 | 5 | 265,500 | 26,550 | 1 |
| 3,150,000 | 3,150,000 | ..... | ..... | 1,350,000 | 1,350,000 | 6 | 81,000 | 5,400,000 | 4,500,000 | 5 | [6]9,000,000 | [7]73,235 | 2 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 33,003 | 3 |
| 100,000 | 60,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 72,000 | 6 | [8]132,000 | 19,701 | 4 |
| 150,000 | 150,000 | ..... | ..... | ..... | ..... | ..... | ..... | 150,000 | 150,000 | 6 | [6]300,000 | 64,935 | 5 |
| 2,250,000 | 2,250,000 | ..... | ..... | ..... | ..... | ..... | ..... | 2,250,000 | 1,397,000 | 5, 6 | [8]3,647,000 | 97,253 | 6 |
| 350,000 | 350,000 | ..... | ..... | ..... | ..... | ..... | ..... | 300,000 | 300,000 | 6 | 650,000 | 32,500 | 7 |
| 125,000 | 125,000 | ..... | ..... | ..... | ..... | ..... | ..... | 125,000 | 20,000 | 5 | 145,000 | 24,702 | 8 |
| 25,900 | 25,900 | ..... | ..... | ..... | ..... | ..... | ..... | 110,000 | 110,000 | 6 | 135,900 | 19,414 | 9 |
| 150,000 | 127,800 | ..... | ..... | ..... | ..... | ..... | ..... | 120,000 | 61,150 | ..... | 188,950 | 11,050 | |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | [9]100,000 | [9]50,000 | 5 | 150,000 | 12,500 | 1 |
| 50,000 | 27,800 | ..... | ..... | ..... | ..... | ..... | ..... | 20,000 | 11,150 | 7 | 38,950 | 7,637 | 2 |
| 1,065,300 | 885,300 | ..... | ..... | ..... | ..... | ..... | ..... | 1,438,000 | 1,058,000 | ..... | 1,943,300 | [11]36,251 | |
| 27,500 | 27,500 | ..... | ..... | ..... | ..... | ..... | ..... | 55,000 | 55,000 | 6 | 82,500 | 26,025 | 1 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 160,000 | 6 | [6]360,000 | 47,556 | 2 |
| 33,000 | 33,000 | ..... | ..... | ..... | ..... | ..... | ..... | 33,000 | 33,000 | 5 | 66,000 | 48,529 | 3 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 200,000 | 6 | [12]300,000 | 32,328 | 4 |
| 500,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 750,000 | 610,000 | 6 | [12]1,110,000 | 53,623 | 5 |
| 200,000 | 20,000 | ..... | ..... | ..... | ..... | ..... | ..... | 150,000 | ..... | ..... | [8]20,000 | 2,581 | 6 |
| 4,800 | 4,800 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4,800 | 1,805 | 7 |
| 51,392,434 | 46,022,099 | ..... | 653,412 | ..... | ..... | ..... | ..... | 47,367,000 | 30,539,500 | ..... | 76,561,599 | [13]90,166 | |
| 250,000 | 45,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 100,000 | 5 | 145,000 | 67,442 | 1 |
| 2,500,000 | 31,225 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 31,225 | 12,490 | 2 |
| 200,000 | 20,550 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 20,550 | 7,086 | 3 |
| 100,000 | 100,000 | 1½ | 1,500 | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | 200,000 | 39,216 | 4 |
| 60,000 | 60,000 | 2 | 1,200 | ..... | ..... | ..... | ..... | 12,000 | 9,500 | 6 | 69,500 | 496,429 | 5 |
| 5,000,000 | 5,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 5,000,000 | 4,520,000 | 5 | 9,520,000 | 100,401 | 6 |
| 1,000,000 | 1,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 1,000,000 | 5 | 2,000,000 | 62,775 | 7 |
| 2,500,000 | 1,500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,500,000 | 1,500,000 | 5 | [12]3,000,000 | 34,294 | 8 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 60,000 | 5 | 260,000 | 22,928 | 9 |
| 500,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 5, 6 | 1,000,000 | 38,462 | 10 |
| 50,000 | 20,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 20,000 | 4,728 | 11 |
| 8,000 | 8,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8,000 | 5,333 | 12 |
| 180,000 | 90,000 | 3½ | 3,300 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 90,000 | 21,687 | 13 |
| 6,900,000 | 6,900,000 | ..... | ..... | ..... | ..... | ..... | ..... | 6,500,000 | 4,433,000 | 5, 6 | [12]11,333,000 | 92,288 | 14 |
| 250,000 | 250,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [8]250,000 | 31,250 | 15 |
| 600,000 | 600,000 | ..... | ..... | ..... | ..... | ..... | ..... | 600,000 | 441,000 | 4 | 1,041,000 | 156,777 | 16 |
| 8,000 | 8,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8,000 | 3,200 | 17 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [16]10,000 | [16]10,000 | ..... | 10,000 | 5,525 | 18 |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 50,000 | 19,531 | 19 |
| 150,000 | 150,000 | ..... | ..... | ..... | ..... | ..... | ..... | 150,000 | 104,000 | 5, 6 | [12]254,000 | 34,938 | 20 |
| 200,000 | 81,200 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 100,000 | 4, 5 | 181,200 | 19,634 | 21 |
| 2,500,000 | 1,852,500 | 1½ | 6,104 | ..... | ..... | ..... | ..... | 2,500,000 | 2,100,000 | 5, 6 | [8]3,952,500 | [17]152,328 | 22 |
| 500,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 185,000 | 5 | 685,000 | 89,895 | 23 |
| 500,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 30,120 | 24 |
| 1,000,000 | 1,000,000 | 3½ | 35,000 | ..... | ..... | ..... | ..... | 1,000,000 | 671,000 | 5 | [12]1,671,000 | 217,578 | 25 |
| 1,000,000 | 1,000,000 | 8 | 80,000 | ..... | ..... | ..... | ..... | 1,000,000 | 900,000 | 5 | [12]1,900,000 | 174,954 | 26 |
| 1,000,000 | 1,000,000 | 2½ | 24,000 | ..... | ..... | ..... | ..... | 250,000 | 150,000 | 6 | [12]1,150,000 | 127,636 | 27 |
| 22,150,000 | 21,857,990 | 2½ | 496,808 | ..... | ..... | ..... | ..... | 25,450,000 | 13,091,000 | 5, 6 | [12]34,948,990 | 140,386 | 28 |
| 235,934 | 235,934 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 235,934 | 15,563 | 29 |
| 500,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 250,000 | 6 | 750,000 | 41,391 | 30 |
| 250,000 | 250,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 160,000 | 5 | 410,000 | 48,235 | 31 |
| 500,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 280,000 | 40,000 | 6 | 540,000 | 95,238 | 32 |
| 27,000 | 27,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 27,000 | 9,474 | 33 |
| 23,500 | 23,500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 23,500 | 8,206 | 34 |
| 500,000 | 161,200 | 3½ | 5,500 | ..... | ..... | ..... | ..... | 115,000 | 115,000 | 6 | 276,200 | 23,055 | 35 |

[10] Exclusive of 1.16 miles lying outside of state. Total owned and operated by companies in state, 52.49 miles.
[11] Exclusive of $40,486, investments other than street railways and electric-light plants owned.
[12] Includes investments other than street railways.
[13] Includes 1.16 miles in Texas.
[14] Cash investment.
[15] Exclusive of $1,805,168, investments other than street railways and electric-light plants owned.
[16] Floating debt.
[17] Exclusive of $372,792, investments other than street railways and electric-light plants owned.
[18] Including Central Street Rwy. Co. and Union Street Rwy. Co.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | COLORADO. | | | | | | | |
| | Total for state | | | | 234.53 | 234.53 | [1] $8,185,904 | [1] $7,562,804 |
| 1 | Boulder | Boulder Railway and Utility Co | June 1,1901 | May 31,1902 | 4.08 | 4.08 | 250,000 | 200,000 |
| 2 | Colorado Springs, Cripple Creek, Victor. | Colorado Springs and Cripple Creek District Rwy. Co.[3] | July 1,1901 | June 30,1902 | 11.78 | 11.78 | 560,000 | 560,000 |
| 3 | Colorado Springs, Colorado City, Manitou. | Colorado Springs Rapid Transit Rwy. Co.. | Jan. 1,1901 | Dec. 31,1901 | 27.46 | 29.01 | 500,000 | 500,000 |
| 3a | ..... | Manitou Electric Railway and Casino Co. (lessor). | May 1,1901 | Apr. 30,1902 | 1.55 | ..... | 125,000 | 125,000 |
| 4 | Denver | Denver, Lakewood and Golden R. R. Co.[3] .. | July 1,1901 | June 30,1902 | 6.00 | 6.00 | ([5]) | ([5]) |
| 5 | .....do | Denver City Tramway Co | Jan. 1,1901 | Dec. 31,1901 | 143.77 | 143.77 | 5,000,000 | 5,000,000 |
| 6 | Durango, Animas | Durango Railway and Realty Co | Aug. 1,1901 | July 31,1902 | 2.39 | 2.39 | 250,000 | 176,900 |
| 7 | Grand Junction | Grand Junction Street Car System (municipal). | June 1,1901 | May 31,1902 | 1.25 | 1.25 | [6] 904 | [6] 904 |
| 8 | Pueblo | Pueblo Traction and Lighting Co | July 1,1901 | June 30,1902 | 36.25 | 36.25 | 1,500,000 | 1,000,000 |
| | CONNECTICUT. | | | | | | | |
| | Total for state | | | | 578.49 | 593.43 | [8] 31,932,000 | [8] 25,211,640 |
| 1 | Branford | Branford Lighting and Water Co | July 1,1901 | June 30,1902 | 6.51 | 6.51 | 500,000 | 300,000 |
| 2 | Bridgeport, Waterbury, Naugatuck, Greenwich, Derby, South Norwalk, Norwalk, Westport, Southington. | Connecticut Railway and Lighting Co | July 1,1901 | June 30,1902 | 159.28 | 159.28 | 15,000,000 | 15,000,000 |
| 3 | Bristol, Plainville, Southington .. | Bristol and Plainville Tramway Co | July 1,1901 | June 30,1902 | 7.92 | 7.92 | 1,000,000 | 50,000 |
| 4 | Danbury, Bethel | Danbury and Bethel Street Rwy. Co | July 1,1901 | June 30,1902 | 11.73 | 11.73 | 323,000 | 320,000 |
| 5 | Greenwich | Greenwich Tramway Co | Aug. 14,1901 | June 30,1902 | 5.76 | 5.76 | 600,000 | 125,000 |
| 6 | Enfield, East Windsor | Hartford and Springfield Street Rwy. Co... | July 1,1901 | June 30,1902 | 13.47 | 13.47 | 500,000 | 400,000 |
| 7 | Hartford, Farmington, Unionville | Farmington Street Rwy. Co | July 1,1901 | June 30,1902 | 10.80 | 14.60 | 189,000 | 189,000 |
| 8 | Hartford, Glastonbury, Windsor, South Windsor, West Hartford, Wethersfield. | Hartford Street Rwy. Co | July 1,1901 | June 30,1902 | 77.47 | 93.92 | 2,000,000 | 1,000,000 |
| 8a | ..... | East Hartford and Glastonbury Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 10.20 | ..... | ..... | ..... |
| 9 | Hartford, Manchester, Rockville. | Hartford, Manchester and Rockville Tramway Co. | July 1,1901 | June 30,1902 | 17.34 | 18.13 | 500,000 | 300,000 |
| 9a | ..... | South Manchester Light, Power and Tramway Co. (lessor). | July 1,1901 | June 30,1902 | .79 | ..... | 100,000 | 10,000 |
| 10 | Hartford, New Britain, Bristol, Plainville. | New York, New Haven and Hartford R.R. Co. (Berlin System). | July 1,1901 | June 30,1902 | 25.89 | 25.89 | ([5]) | ([5]) |
| 11 | Meriden, Southington | Meriden, Southington and Compounce Tramway Co. | July 1,1901 | June 30,1902 | 12.34 | 14.39 | 500,000 | 200,000 |
| 12 | Meriden, Wallingford | Meriden Electric R. R. Co | July 1,1901 | June 30,1902 | 19.50 | 19.50 | 1,000,000 | 1,000,000 |
| 13 | Middletown, Portland | Middletown Street Rwy. Co | July 1,1901 | June 30,1902 | 9.93 | 9.93 | 200,000 | 135,000 |
| 14 | New Haven | Manufacturers R. R. Co | July 1,1901 | June 30,1902 | 1.36 | 1.36 | 20,000 | 20,000 |
| 15 | New Haven, East Haven, Hamden, North Haven. | Fairhaven and Westville R. R. Co | July 1,1901 | June 30,1902 | 71.23 | 96.67 | 5,000,000 | 3,790,400 |
| 15a | ..... | Winchester Avenue R. R. Co. (lessor) | July 1,1901 | June 30,1902 | 19.95 | ..... | 1,000,000 | 800,000 |
| 15b | ..... | West Shore Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 4.49 | ..... | 200,000 | 80,000 |
| 16 | New London | New London Street Rwy. Co | July 1,1901 | June 30,1902 | 8.51 | 8.51 | 500,000 | 250,000 |
| 17 | Norwich, New London, Montville, Waterford. | Montville Street Rwy. Co | July 1,1901 | June 30,1902 | 10.67 | 13.51 | 300,000 | 250,000 |
| 18 | Norwich, Sprague | Norwich Street Rwy. Co | July 1,1901 | June 30,1902 | 17.65 | 17.65 | 600,000 | 250,000 |
| 19 | Putnam, Thompson, Killingly ... | Peoples Tramway Co | July 1,1901 | June 30,1902 | 16.44 | 16.44 | 400,000 | 400,000 |
| 20 | Stamford, Greenwich | Stamford Street R. R. Co | July 1,1901 | June 30,1902 | 12.69 | 12.69 | 200,000 | 92,240 |
| 21 | Stamford, New Canaan | New York, New Haven and Hartford R. R. Co. (New Canaan Branch). | July 1,1901 | June 30,1902 | 8.63 | 8.63 | ([5]) | ([5]) |
| 22 | Suffield | Suffield Street Rwy. Co | Feb. 1,1902 | June 30,1902 | 4.91 | 4.91 | 300,000 | 50,000 |
| 23 | Torrington, Winchester | Torrington and Winchester Street Rwy. Co. | July 1,1901 | June 30,1902 | 13.03 | 13.03 | 1,000,000 | 200,000 |
| | DELAWARE. | | | | | | | |
| | Total for state | | | | 85.61 | 89.66 | 2,270,000 | 2,264,990 |
| 1 | Wilmington, Newcastle, Delaware City. | Wilmington and New Castle Electric Rwy. Co. | Oct. 1,1900 | Sept. 30,1901 | 13.45 | 17.50 | 250,000 | 244,990 |
| 2 | Wilmington and vicinity | Peoples Rwy. Co | June 1,1901 | May 31,1902 | 31.38 | 31.38 | 1,500,000 | 1,500,000 |
| 3 | .....do | Wilmington City Rwy. Co., including Front and Union Streets Passenger Rwy. Co. | Jan. 1,1902 | Dec. 31,1902 | 40.78 | 40.78 | 520,000 | 520,000 |
| | DISTRICT OF COLUMBIA. | | | | | | | |
| | Total for district | | | | [14] 146.17 | [14] 152.87 | 17,704,000 | 17,543,550 |
| 1 | Washington | Anacostia and Potomac River R. R. Co.... | Jan. 1,1901 | Dec. 31,1901 | 18.10 | 22.90 | 2,000,000 | 2,000,000 |
| 2 | .....do | Brightwood Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 11.69 | 11.69 | 204,000 | 108,500 |
| 3 | .....do | Capital Traction Co | Jan. 1,1901 | Dec. 31,1901 | [16] 40.69 | [16] 41.36 | 12,000,000 | 12,000,000 |
| 4 | .....do | City and Suburban Railway of Washington | Jan. 1,1901 | Dec. 31,1901 | [16] 31.80 | [16] 32.62 | 1,750,000 | 1,750,000 |
| 5 | .....do | Columbia Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 14.72 | 14.72 | 400,000 | 400,000 |
| 6 | .....do | Georgetown and Tennallytown Rwy. Co .. | Jan. 1,1901 | Dec. 31,1901 | 8.32 | 8.32 | 200,000 | 200,000 |
| 7 | .....do | Metropolitan R. R. Co | Jan. 1,1901 | Dec. 31,1901 | 22.67 | 23.08 | 1,000,000 | 998,250 |
| 8 | .....do | Washington and Great Falls Electric Rwy. Co. | Jan. 1,1901 | Dec. 31,1901 | [17] 13.98 | [17] 13.98 | 150,000 | 86,800 |

[1] Capital reported for 8 companies only, representing 228.53 miles of track owned. (See note 5.)
[2] Exclusive of $210,062, investments other than street railways and electric-light plants owned.
[3] Primarily a steam railroad.
[4] Includes investments other than street railways.
[5] Capitalization included in that of steam railroad.
[6] Cash investment.
[7] Includes electric-light plant and other investments.
[8] Capital reported for 25 companies only, representing 543.97 miles of track owned. (See note 5.)
[9] Exclusive of $2,121,530, investments other than street railways and electric-light plants owned.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $7,961,904 | $7,338,804 | ..... | $181,250 | $224,000 | $224,000 | ..... | ..... | $13,065,000 | $8,395,560 | ..... | [1]$15,958,364 | [2]$68,911 | |
| 250,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 100,000 | 5 | 300,000 | 73,529 | 1 |
| 336,000 | 336,000 | ..... | ..... | 224,000 | 224,000 | ..... | ..... | 840,000 | 833,560 | 5 | 1,398,560 | 118,299 | 2 |
| 500,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 6 | [4]1,000,000 | 36,417 | 3 |
| 125,000 | 125,000 | 1 | 1,250 | ..... | ..... | ..... | ..... | 25,000 | 25,000 | 6 | [4]150,000 | 96,774 | 3a |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | (5) | (5) | ..... | ..... | ..... | 4 |
| 5,000,000 | 5,000,000 | 3 | 150,000 | ..... | ..... | ..... | ..... | 10,000,000 | 5,837,000 | 5,6 | 10,837,000 | 75,377 | 5 |
| 250,000 | 176,900 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [4]176,900 | 74,017 | 6 |
| 904 | 904 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 904 | 723 | 7 |
| 1,500,000 | 1,000,000 | 3 | 30,000 | ..... | ..... | ..... | ..... | 1,500,000 | 1,100,000 | 5 | [7]2,100,000 | 57,931 | 8 |
| 27,832,000 | 21,166,590 | ..... | 275,062 | 4,100,000 | 4,045,050 | ..... | ..... | 24,801,000 | 17,433,500 | ..... | [8]42,645,140 | [9]74,496 | |
| 500,000 | 300,000 | ..... | ..... | ..... | ..... | ..... | ..... | 400,000 | 300,000 | 5 | [7]600,000 | [10]65,093 | 1 |
| 11,000,000 | 11,000,000 | ..... | ..... | 4,000,000 | 4,000,000 | ..... | ..... | 15,000,000 | 9,350,000 | 4½,5,6 | [7]24,350,000 | 152,875 | 2 |
| 1,000,000 | 50,000 | 6 | 3,000 | ..... | ..... | ..... | ..... | 200,000 | 67,500 | 5 | 117,500 | 14,836 | 3 |
| 323,000 | 320,000 | 3 | 9,600 | ..... | ..... | ..... | ..... | 200,000 | 200,000 | 5 | 520,000 | 44,331 | 4 |
| 600,000 | 125,000 | ..... | ..... | ..... | ..... | ..... | ..... | 400,000 | 150,000 | 5 | 275,000 | 47,743 | 5 |
| 500,000 | 400,000 | ..... | ..... | ..... | ..... | ..... | ..... | 600,000 | 400,000 | 5 | 800,000 | 59,391 | 6 |
| 189,000 | 189,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 189,000 | [11]14,583 | 7 |
| 2,000,000 | 1,000,000 | 6 | 60,000 | ..... | ..... | ..... | ..... | 3,000,000 | 2,500,000 | 4 | 3,500,000 | 45,179 | 8 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 200,000 | 5 | 200,000 | 19,608 | 8a |
| 500,000 | 300,000 | ..... | ..... | ..... | ..... | ..... | ..... | 300,000 | 200,000 | 5 | 500,000 | 28,835 | 9 |
| 100,000 | 10,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 10,000 | 12,658 | 9a |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | (5) | (5) | ..... | ..... | ..... | 10 |
| 500,000 | 200,000 | 3 | 6,000 | ..... | ..... | ..... | ..... | 200,000 | 175,000 | 5 | 375,000 | 30,389 | 11 |
| 1,000,000 | 1,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 600,000 | 500,000 | 5 | 1,500,000 | 76,923 | 12 |
| 200,000 | 135,000 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 150,000 | 5 | 285,000 | 28,701 | 13 |
| 20,000 | 20,000 | ..... | ..... | ..... | ..... | ..... | ..... | 13,000 | 13,000 | 5 | 33,000 | 24,265 | 14 |
| 5,000,000 | 3,790,400 | 3 | 113,712 | ..... | ..... | ..... | ..... | 1,133,000 | 1,133,000 | 5 | 4,923,400 | [12]45,187 | 15 |
| 1,000,000 | 800,000 | 5 | 40,000 | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 5 | 1,300,000 | 65,163 | 15a |
| 200,000 | 80,000 | 5 | 4,000 | ..... | ..... | ..... | ..... | 30,000 | 30,000 | 5 | 110,000 | 24,499 | 15b |
| 500,000 | 250,000 | 5 | 12,500 | ..... | ..... | ..... | ..... | 150,000 | 140,000 | 5 | 390,000 | 45,828 | 16 |
| 300,000 | 250,000 | 6 | 15,000 | ..... | ..... | ..... | ..... | 350,000 | 250,000 | 5 | 500,000 | 46,860 | 17 |
| 600,000 | 250,000 | 4½ | 11,250 | ..... | ..... | ..... | ..... | 350,000 | 350,000 | 5 | 600,000 | 33,994 | 18 |
| 400,000 | 400,000 | ..... | ..... | ..... | ..... | ..... | ..... | 600,000 | 600,000 | 5 | 1,000,000 | 60,827 | 19 |
| 100,000 | 47,190 | ..... | ..... | 100,000 | 45,050 | ..... | ..... | 75,000 | 75,000 | 5 | 167,240 | 13,179 | 20 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | (5) | (5) | ..... | ..... | ..... | 21 |
| 300,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | 150,000 | ..... | ..... | 50,000 | 10,183 | 22 |
| 1,000,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 150,000 | 150,000 | 5 | 350,000 | 26,861 | 23 |
| 2,270,000 | 2,264,990 | ..... | 9,331 | ..... | ..... | ..... | ..... | 2,424,000 | 2,424,000 | ..... | 4,688,990 | 54,772 | |
| 250,000 | 244,990 | 6 | [13]9,331 | ..... | ..... | ..... | ..... | 300,000 | 300,000 | 5 | 544,990 | 40,520 | 1 |
| 1,500,000 | 1,500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,524,000 | 1,524,000 | 5 | 3,024,000 | 96,367 | 2 |
| 520,000 | 520,000 | ..... | ..... | ..... | ..... | ..... | ..... | 600,000 | 600,000 | 4 | 1,120,000 | 27,464 | 3 |
| 17,704,000 | 17,543,550 | ..... | 602,827 | ..... | ..... | ..... | ..... | 10,550,000 | 9,280,000 | ..... | 26,823,550 | 165,608 | |
| 2,000,000 | 2,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 3,000,000 | 2,250,000 | 5 | 4,250,000 | 234,807 | 1 |
| 204,000 | 108,500 | ..... | ..... | ..... | ..... | ..... | ..... | 350,000 | 350,000 | 6 | 458,500 | 39,222 | 2 |
| 12,000,000 | 12,000,000 | 4 | 480,000 | ..... | ..... | ..... | ..... | 1,500,000 | 1,080,000 | 4 | 13,080,000 | 321,455 | 3 |
| 1,750,000 | 1,750,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,750,000 | 1,750,000 | 5 | 3,500,000 | 110,063 | 4 |
| 400,000 | 400,000 | 6 | 24,000 | ..... | ..... | ..... | ..... | 1,000,000 | 1,000,000 | 5,6 | 1,400,000 | 95,109 | 5 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 6 | 300,000 | 36,058 | 6 |
| 1,000,000 | 998,250 | 9⅝ | 98,827 | ..... | ..... | ..... | ..... | 2,350,000 | 2,350,000 | 5,6 | 3,348,250 | 147,695 | 7 |
| 150,000 | 86,800 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 400,000 | 6 | 486,800 | 34,821 | 8 |

[10] Exclusive of $176,243, investments other than street railways and electric-light plants owned.
[11] Exclusive of $31,500, investments other than street railways.
[12] Exclusive of $1,704,734, investments other than street railways.
[13] Stock not all issued at time dividend was declared.
[14] Exclusive of 19.40 miles lying outside of district, but including 3.60 miles in district owned by outside companies. Total owned by companies in the district, 161.97 miles; total operated, 168.67 miles.
[15] Includes 3.65 miles in Maryland.
[16] Includes 9.53 miles in Maryland.
[17] Includes 6.22 miles in Maryland.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | PERIOD COVERED BY REPORT. To— | LENGTH, SINGLE-TRACK MILES. Owned. | LENGTH, SINGLE-TRACK MILES. Operated. | CAPITAL STOCK. Total par value. Authorized. | CAPITAL STOCK. Total par value. Issued. |
|---|---|---|---|---|---|---|---|---|
| | FLORIDA. | | | | | | | |
| | Total for state | | | | 61.75 | 61.75 | $1,949,400 | $1,949,400 |
| 1 | Fort Meade | Fort Meade Street Rwy. Co | Jan. 1, 1902 | Dec. 31, 1902 | 1.25 | 1.25 | 6,000 | 6,000 |
| 2 | Jacksonville | Jacksonville Electric Co | Mar. 1, 1902 | Dec. 31, 1902 | 18.15 | 18.15 | 1,000,000 | 1,000,000 |
| 3 | Key West | Key West Electric Co | July 1, 1901 | June 30, 1902 | 3.74 | 3.74 | 300,000 | 300,000 |
| 4 | Palatka | Palatka and Heights Street Rwy. Co | Feb. 1, 1901 | Jan. 31, 1902 | 3.50 | 3.50 | 10,000 | 10,000 |
| 5 | Pensacola | Pensacola Electric Terminal Rwy. Co | July 1, 1901 | June 30, 1902 | 9.00 | 9.00 | 133,400 | 133,400 |
| 6 | Tampa, West Tampa, Port Tampa, Fort Brook. | Tampa Electric Co | Jan. 1, 1902 | Dec. 31, 1902 | 26.11 | 26.11 | 500,000 | 500,000 |
| | GEORGIA. | | | | | | | |
| | Total for state | | | | [2] 305.38 | [2] 308.38 | 13,029,000 | 12,957,600 |
| 1 | Athens | Athens Electric Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 6.53 | 6.53 | 100,000 | 75,000 |
| 2 | Atlanta, Decatur, College Park... | Georgia Railway and Electric Co | July 1, 1901 | June 30, 1902 | 150.00 | 153.00 | 6,800,000 | 6,800,000 |
| | Augusta | North Augusta Electric and Improvement Co.[4] | | | | | | |
| 3 | Augusta, Summerville | Augusta Railway and Electric Co | Nov. 1, 1901 | Oct. 31, 1902 | 31.02 | 31.02 | 1,000,000 | 1,000,000 |
| 4 | Columbus | Columbus R. R. Co | Jan. 1, 1902 | Dec. 31, 1902 | 17.00 | 17.00 | 250,000 | 250,000 |
| 5 | Covington, Oxford | Covington and Oxford Street Rwy. Co | Feb. 15, 1901 | Feb. 14, 1902 | 2.25 | 2.25 | 20,000 | 13,600 |
| 6 | Macon and vicinity | Macon Railway and Light Co | Jan. 1, 1902 | Dec. 31, 1902 | 30.67 | 30.67 | 1,200,000 | 1,200,000 |
| 7 | Rome | City Electric Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 6.28 | 6.28 | 100,000 | 60,000 |
| 8 | Savannah and vicinity | Savannah Electric Co | Jan. 1, 1902 | Dec. 31, 1902 | 53.05 | 53.05 | 3,500,000 | 3,500,000 |
| 9 | Valdosta | Valdosta Street Rwy. Co | Jan. 1, 1902 | Dec. 31, 1902 | 2.08 | 2.08 | 50,000 | 50,000 |
| 10 | Washington | Washington Street Rwy. Co | Jan. 1, 1902 | Dec. 31, 1902 | 1.50 | 1.50 | 9,000 | 9,000 |
| | IDAHO. | | | | | | | |
| | Total for state | | | | 3.50 | 3.50 | 200,000 | 55,300 |
| 1 | Boise | Boise Rapid Transit Co | July 1, 1901 | June 30, 1902 | 3.50 | 3.50 | 200,000 | 55,300 |
| | ILLINOIS. | | | | | | | |
| | Total for state | | | | [5] 1,659.35 | [5] 1,713.39 | 205,518,173 | 160,527,416 |
| 1 | Alton, North Alton | Alton Railway, Gas and Electric Co | July 1, 1901 | June 30, 1902 | 12.25 | 12.25 | 300,000 | 300,000 |
| 2 | Aurora, Yorkville, Batavia, Elgin, Carpentersville. | Elgin, Aurora and Southern Traction Co | July 1, 1901 | June 30, 1902 | 62.96 | 62.96 | 2,000,000 | 2,000,000 |
| 3 | Bloomington, Normal | Bloomington and Normal Railway, Electric and Heating Co. | June 1, 1902 | Nov. 30, 1902 | 21.00 | 21.00 | 300,000 | 250,000 |
| 4 | Buffalo, Mechanicsburg | Mechanicsburg and Buffalo Street Rwy. Co. | Mar. 1, 1901 | Feb. 28, 1902 | 3.70 | 3.70 | 12,000 | 12,000 |
| 5 | Cairo | Cairo Electric Rwy. Co | July 1, 1901 | June 30, 1902 | 5.67 | 5.67 | 75,000 | 52,400 |
| 6 | .....do | Egypt Electric Co | July 1, 1901 | June 30, 1902 | 4.00 | 4.00 | 40,000 | 40,000 |
| 7 | Centralia, Central City | Centralia and Central City Street Rwy. Co. | Jan. 1, 1902 | Dec. 31, 1902 | 3.42 | 3.42 | 10,000 | 8,260 |
| 8 | Champaign, Urbana | Urbana and Champaign Railway, Gas and Electric Co. | May 1, 1901 | Apr. 30, 1902 | 9.00 | 9.00 | 200,000 | 200,000 |
| 9 | Chicago | Chicago City Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 222.50 | 222.50 | 18,000,000 | 18,000,000 |
| 10 | .....do | Chicago Union Traction Co | July 1, 1901 | June 30, 1902 | ..... | 305.32 | 32,000,000 | 32,000,000 |
| 10a | .....do | Chicago Passenger Rwy. Co. (lessor) | July 1, 1901 | June 30, 1902 | 33.61 | ..... | 2,000,000 | 1,340,300 |
| 10b | .....do | Chicago West Division Rwy. Co. (lessor) | July 1, 1901 | June 30, 1902 | 96.36 | ..... | 1,250,000 | 1,250,000 |
| 10c | .....do | North Chicago City Rwy. Co. (lessor) | July 1, 1901 | June 30, 1902 | 46.96 | ..... | 500,000 | 500,000 |
| 10d | .....do | North Chicago Street R. R. Co. (lessor) | July 1, 1901 | June 30, 1902 | 47.12 | ..... | 10,000,000 | 7,920,000 |
| 10e | .....do | West Chicago Street R. R. Co. (lessor) | July 1, 1901 | June 30, 1902 | 81.10 | ..... | 20,000,000 | 13,189,000 |
| 11 | .....do | Chicago Consolidated Traction Co | Jan. 1, 1901 | Dec. 31, 1901 | 166.24 | 206.51 | 15,000,000 | 15,000,000 |
| 11a | .....do | Chicago and North Shore Street Rwy. Co. (lessor). | Jan. 1, 1901 | Dec. 31, 1901 | 14.92 | ..... | 650,000 | 650,000 |
| 12 | .....do | Calumet Electric Street Rwy. Co | May 1, 1901 | Apr. 30, 1902 | [9] 79.32 | [9] 80.94 | 500,000 | 500,000 |
| 13 | .....do | Chicago Electric Traction Co | July 1, 1901 | June 30, 1902 | 28.50 | 26.88 | 250,000 | 250,000 |
| 14 | .....do | Chicago General Rwy. Co | July 1, 1901 | June 30, 1902 | 21.14 | 25.74 | 10,000,000 | 500,000 |
| 15 | .....do | Chicago General Electric Rwy. Co | July 1, 1901 | June 30, 1902 | 1.50 | 1.50 | 5,000,000 | 8,000 |
| 16 | .....do | Suburban R. R. Co | July 1, 1901 | June 30, 1902 | [10] 43.59 | [10] 43.59 | 1,250,000 | 1,250,000 |
| 17 | .....do | Northwestern Elevated R. R. Co | July 1, 1901 | June 30, 1902 | 29.57 | 30.37 | 30,000,000 | 10,000,000 |
| 18 | .....do | South Side Elevated R. R. Co | July 1, 1901 | June 30, 1902 | 21.08 | 23.06 | 10,323,800 | 10,323,800 |
| 19 | .....do | Metropolitan West Side Elevated Rwy. Co. | July 1, 1901 | June 30, 1902 | 38.96 | 41.34 | 16,500,000 | 16,208,100 |
| 19a | .....do | Union Consolidated Elevated Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | .38 | ..... | 1,000,000 | 1,000,000 |
| 20 | Chicago; Hammond (Ind.) | South Chicago City Rwy. Co | Apr. 1, 1901 | Mar. 31, 1902 | 38.42 | 38.42 | [11] 2,000,000 | [11] 1,603,800 |
| 21 | Chicago, Evanston, Waukegan | Chicago and Milwaukee Electric Rwy. Co. | July 1, 1901 | June 30, 1902 | 43.00 | 44.50 | 1,000,000 | 1,000,000 |
| 22 | Chicago | Lake Street Elevated R. R. Co. (includes Chicago and Harlem R.R.). | July 1, 1901 | June 30, 1902 | 20.97 | 26.49 | 10,000,000 | 10,000,000 |
| 23 | Chicago, Joliet | Chicago and Joliet Electric Rwy. Co | July 1, 1901 | June 30, 1902 | 38.92 | 62.89 | 2,300,000 | 2,300,000 |
| 23a | Chicago, Lemont | Chicago and Des Plaines Valley Electric Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | 23.97 | ..... | 1,100,000 | 1,100,000 |
| 24 | Chicago | Northern Electric Rwy. Co | July 1, 1901 | June 30, 1902 | 4.00 | 4.00 | 50,000 | 50,000 |
| 25 | Danville, Germantown | Danville Street Railway and Light Co | Jan. 1, 1901 | Dec. 31, 1901 | 12.50 | 12.50 | 700,000 | 700,000 |
| 26 | Danville, Westville | Danville, Paxton and Northern R. R. Co | Jan. 1, 1902 | June 30, 1902 | 13.50 | 14.00 | 250,000 | 250,000 |
| 27 | Decatur | Decatur Traction and Electric Co | Jan. 1, 1902 | Dec. 31, 1902 | 13.50 | 13.50 | 250,000 | 250,000 |
| 28 | East St. Louis | East St. Louis Rwy. Co | July 1, 1901 | June 30, 1902 | 19.95 | 19.95 | 1,500,000 | 1,500,000 |
| 29 | East St. Louis, Belleville | St. Louis and Belleville Electric Rwy. Co. | July 1, 1901 | June 30, 1902 | 21.49 | 21.49 | 750,000 | 750,000 |
| 30 | East St. Louis, Belleville, Edwardsville, Collinsville. | East St. Louis and Suburban Rwy. Co | July 1, 1901 | June 30, 1902 | 58.60 | 58.22 | 2,975,000 | 2,975,000 |
| 31 | East St. Louis; St. Louis (Mo.) | St. Louis and East St. Louis Electric Rwy. Co. | July 1, 1901 | June 30, 1902 | [12] 2.12 | [12] 2.12 | 500,000 | 500,000 |

[1] Includes electric-light plant.
[2] Includes 5 miles in state owned by outside companies. Total owned by companies in state, 300.38 miles; total operated, 308.38 miles.
[3] Includes electric-light plant and other investments.
[4] See South Carolina.
[5] Exclusive of 6.85 miles lying outside of state, but including 31 miles in state owned by outside companies. Total owned by companies in state, 1,635.20 miles including 12.79 miles leased from steam railroad (see note 10); total operated, 1,689.24 miles.
[6] Exclusive of $40,237,103, investments other than street railways and electric-light plants owned.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $1,749,400 | $1,749,400 | ..... | $40,720 | $200,000 | $200,000 | ..... | ..... | $2,304,000 | $1,531,000 | ..... | [1] $3,480,400 | $56,363 | |
| 6,000 | 6,000 | 12 | 720 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6,000 | 4,800 | 1 |
| 800,000 | 800,000 | ..... | ..... | 200,000 | 200,000 | ..... | ..... | 1,250,000 | 700,000 | 5 | 1,700,000 | 93,664 | 2 |
| 300,000 | 300,000 | ..... | ..... | ..... | ..... | ..... | ..... | 300,000 | 200,000 | 5 | [1] 500,000 | 133,690 | 3 |
| 10,000 | 10,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 10,000 | 2,857 | 4 |
| 133,400 | 133,400 | ..... | ..... | ..... | ..... | ..... | ..... | 254,000 | 254,000 | 5, 6 | 387,400 | 43,044 | 5 |
| 500,000 | 500,000 | 8 | 40,000 | ..... | ..... | ..... | ..... | 500,000 | 377,000 | 6 | [1] 877,000 | 33,589 | 6 |
| 9,929,000 | 9,857,600 | ..... | 952 | 3,100,000 | 3,100,000 | ..... | $33,000 | 17,700,000 | 13,081,500 | ..... | [2] 26,039,100 | 86,687 | |
| 100,000 | 75,000 | ..... | ..... | ..... | ..... | ..... | ..... | 400,000 | 200,000 | 6 | [1] 275,000 | 42,113 | 1 |
| 5,000,000 | 5,000,000 | ..... | ..... | 1,800,000 | 1,800,000 | ..... | ..... | 11,000,000 | 7,850,000 | 5 | [2] 14,650,000 | 97,667 | 2 |
| 1,000,000 | 1,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 1,000,000 | 5 | [1] 2,000,000 | 64,475 | 3 |
| 250,000 | 250,000 | ..... | ..... | ..... | ..... | ..... | ..... | 700,000 | 680,000 | 5, 6 | [1] 930,000 | 54,706 | 4 |
| 20,000 | 13,600 | 7 | 952 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 13,600 | 6,044 | 5 |
| 900,000 | 900,000 | ..... | ..... | 300,000 | 300,000 | 6 | 18,000 | 1,000,000 | 751,500 | 5 | [3] 1,951,500 | 63,629 | 6 |
| 100,000 | 60,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | [1] 160,000 | 25,478 | 7 |
| 2,500,000 | 2,500,000 | ..... | ..... | 1,000,000 | 1,000,000 | 1½ | 15,000 | 3,500,000 | 2,500,000 | 4, 5, 6 | [1] 6,000,000 | 113,101 | 8 |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 50,000 | 24,038 | 9 |
| 9,000 | 9,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9,000 | 6,000 | 10 |
| 200,000 | 55,300 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 55,300 | 15,800 | |
| 200,000 | 55,300 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 55,300 | 15,800 | 1 |
| 159,518,173 | 134,819,316 | ..... | 4,484,722 | 46,000,000 | 25,708,100 | ..... | 261,243 | 134,616,667 | 99,558,267 | ..... | 260,085,683 | [6] 135,507 | |
| 300,000 | 300,000 | ..... | ..... | ..... | ..... | ..... | ..... | 300,000 | 300,000 | 5 | 600,000 | 48,980 | 1 |
| 2,000,000 | 2,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 2,000,000 | 2,000,000 | 5 | [1] 4,000,000 | 63,532 | 2 |
| 300,000 | 250,000 | ..... | ..... | ..... | ..... | ..... | ..... | 300,000 | 250,000 | 5 | 500,000 | 23,810 | 3 |
| 12,000 | 12,000 | 4½ | 515 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12,000 | 3,243 | 4 |
| 75,000 | 52,400 | ..... | ..... | ..... | ..... | ..... | ..... | 75,000 | 26,200 | 6 | [7] 78,600 | 13,862 | 5 |
| 40,000 | 40,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [8] 40,000 | 10,000 | 6 |
| 10,000 | 8,260 | ..... | ..... | ..... | ..... | ..... | ..... | 4,000 | 4,000 | 5 | 12,260 | 3,585 | 7 |
| 200,000 | 200,000 | 2 | 4,000 | ..... | ..... | ..... | ..... | 200,000 | 200,000 | 5 | [7] 400,000 | 44,444 | 8 |
| 18,000,000 | 18,000,000 | 9 | 1,620,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [7] 18,000,000 | 80,899 | 9 |
| 20,000,000 | 20,000,000 | ..... | ..... | 12,000,000 | 12,000,000 | ..... | ..... | ..... | ..... | ..... | [7] 32,000,000 | | 10 |
| 2,000,000 | 1,340,300 | 5 | 67,015 | ..... | ..... | ..... | ..... | 2,000,000 | 1,706,000 | 5 | 3,046,300 | | 10a |
| 1,250,000 | 1,250,000 | 35 | 437,500 | ..... | ..... | ..... | ..... | 5,000,000 | 4,070,000 | 5 | 5,320,000 | | 10b |
| 500,000 | 500,000 | 30 | 150,000 | ..... | ..... | ..... | ..... | 3,000,000 | 3,000,000 | 5 | 3,500,000 | 268,577 | 10c |
| 10,000,000 | 7,920,000 | 12 | 950,400 | ..... | ..... | ..... | ..... | 4,800,000 | 4,800,000 | 5 | 12,720,000 | | 10d |
| 20,000,000 | 13,189,000 | 6 | 791,340 | ..... | ..... | ..... | ..... | [9] 12,181,000 | [9] 12,181,000 | 5 | 25,370,000 | | 10e |
| 15,000,000 | 15,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 11,944,000 | 11,770,000 | 4½, 5, 6 | 26,770,000 | 161,032 | 11 |
| 650,000 | 650,000 | 6 | 39,000 | ..... | ..... | ..... | ..... | 675,000 | 675,000 | 6 | 1,325,000 | 88,807 | 11a |
| 500,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 3,000,000 | 3,000,000 | 5 | 3,500,000 | 44,125 | 12 |
| 250,000 | 250,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 8,772 | 13 |
| 10,000,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 10,500,000 | 1,727,500 | 5, 6 | 2,227,500 | 105,369 | 14 |
| 5,000,000 | 8,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8,000 | 5,333 | 15 |
| 1,250,000 | 1,250,000 | ..... | ..... | ..... | ..... | ..... | ..... | 3,000,000 | 1,250,000 | 5 | 2,500,000 | 81,169 | 16 |
| 5,000,000 | 5,000,000 | ..... | ..... | 25,000,000 | 5,000,000 | ..... | ..... | 30,000,000 | 18,387,000 | 4, 5 | 28,387,000 | 959,993 | 17 |
| 10,323,800 | 10,323,800 | 4 | 412,952 | ..... | ..... | ..... | ..... | 1,500,000 | 750,000 | 4½ | [7] 11,073,800 | 525,323 | 18 |
| 7,500,000 | 7,500,000 | ..... | ..... | 9,000,000 | 8,708,100 | 3 | 261,243 | 15,000,000 | 11,308,000 | 4 | 27,516,100 | 706,265 | 19 |
| 1,000,000 | 1,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 407,000 | 5 | 1,407,000 | 3,702,632 | 19a |
| 2,000,000 | 1,603,800 | ..... | ..... | ..... | ..... | ..... | ..... | [11] 5,050,000 | [11] 1,563,000 | 5 | 3,166,800 | 82,426 | 20 |
| 1,000,000 | 1,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,500,000 | 1,000,000 | 5 | 2,000,000 | 46,512 | 21 |
| 10,000,000 | 10,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 7,121,000 | 5,728,050 | 5 | 15,728,050 | 750,026 | 22 |
| 2,300,000 | 2,300,000 | ..... | ..... | ..... | ..... | ..... | ..... | 2,000,000 | 2,000,000 | 5, 6 | 4,300,000 | 110,483 | 23 |
| 1,100,000 | 1,100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 1,000,000 | 5 | 2,100,000 | 87,610 | 23a |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | 50,000 | 50,000 | 6 | 100,000 | 25,000 | 24 |
| 700,000 | 700,000 | ..... | ..... | ..... | ..... | ..... | ..... | 700,000 | 670,000 | 5 | [3] 1,370,000 | 109,600 | 25 |
| 250,000 | 250,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 109,000 | 5 | 359,000 | 26,593 | 26 |
| 250,000 | 250,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 211,850 | 5 | 461,850 | 34,211 | 27 |
| 1,500,000 | 1,500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,500,000 | 1,500,000 | 5 | 3,000,000 | 150,376 | 28 |
| 750,000 | 750,000 | ..... | ..... | ..... | ..... | ..... | ..... | 750,000 | 750,000 | 5 | 1,500,000 | 69,800 | 29 |
| 2,975,000 | 2,975,000 | ..... | ..... | ..... | ..... | ..... | ..... | 3,000,000 | 2,900,000 | 5 | [7] 5,875,000 | 109,608 | 30 |
| 500,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 5 | 1,000,000 | 471,698 | 31 |

[7] Includes investments other than street railways.
[8] Includes $1,500,000, bonds of West Chicago Street R. R. Tunnel Co.
[9] Includes .50 mile in Indiana.
[10] Includes 12.79 miles leased from steam railroad.
[11] Not reported; obtained from street-railway journals and directories.
[12] Owned by bridge company; entire trackage is on bridge and includes .85 mile in Missouri.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | ILLINOIS—Continued. | | | | | | | |
| 32 | East St. Louis, Venice, Madison, Granite. | Granite City and St. Louis Rwy. Co | June 1,1902 | Dec. 1,1902 | 13.25 | 13.25 | $500,000 | $500,000 |
| 33 | Freeport | Freeport Electric Co | Sept. 1,1901 | Aug. 31,1902 | 7.50 | 7.50 | [1] 21,456 | [1] 21,456 |
| 34 | Galesburg | Galesburg Electric Motor and Power Co | July 1,1901 | June 30,1902 | 17.00 | 17.00 | [2] 210,000 | [2] 210,000 |
| 35 | Harvard; Walworth (Wis.) | Chicago, Harvard and Geneva Lake Rwy. Co | July 1,1901 | June 30,1902 | [4] 11.12 | [4] 11.12 | 150,000 | 150,000 |
| 36 | Jacksonville | Jacksonville Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 5.19 | 5.19 | 75,000 | 33,450 |
| 37 | Kankakee | Kankakee Electric Rwy. Co | July 1,1901 | June 30,1902 | 8.45 | 8.45 | 60,000 | 50,000 |
| 38 | Kankakee, Bradley | North Kankakee Electric Light and Rwy. Co | July 1,1901 | June 30,1902 | 4.33 | 4.33 | 100,000 | 32,600 |
| 39 | Lincoln | Lincoln Street Car Co | July 1,1902 | Nov. 1,1902 | 7.05 | 7.05 | [1] 40,000 | [1] 40,000 |
| 40 | Marion, Carterville, Spillertown. | Coal Belt Electric Rwy. Co | Sept. 1,1901 | June 30,1902 | 17.30 | 17.30 | 300,000 | 300,000 |
| 41 | Murphysboro | Murphysboro Street Rwy. Co | July 1,1901 | June 30,1902 | 1.55 | 1.55 | [1] 9,250 | [1] 9,250 |
| 42 | Ottawa | Ottawa Railway, Light and Power Co | Jan. 1,1902 | Dec. 31,1902 | 8.50 | 8.50 | 150,000 | 150,000 |
| 43 | Peoria | Peoria and Prospect Heights Rwy. Co | Dec. 1,1900 | Nov. 30,1901 | 6.25 | 6.50 | 100,000 | 100,000 |
| 44 | ....do | Central Rwy. Co | Apr. 1,1901 | Mar. 31,1902 | 35.00 | 35.00 | 750,000 | 750,000 |
| 45 | Peoria, Pekin | Peoria and Pekin Terminal Rwy. Co | July 1,1901 | June 30,1902 | 8.68 | 14.18 | 466,667 | 400,000 |
| 46 | Quincy | Quincy Horse Railway and Carrying Co | Jan. 1,1901 | Dec. 31,1901 | 17.38 | 17.38 | 600,000 | 600,000 |
| 47 | Rockford | Rockford Railway, Light and Power Co | Jan. 1,1901 | Dec. 31,1901 | 23.00 | 23.00 | 350,000 | 350,000 |
| 48 | ....do | Rockford and Belvidere Electric Rwy. Co. | May 1,1902 | June 30,1902 | 13.53 | 14.78 | 200,000 | 200,000 |
| 49 | Springfield, Ridgely | Springfield Consolidated Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 23.83 | 23.83 | 750,000 | 750,000 |
| 50 | Streator | Peoples Light and Rwy. Co | Aug. 27,1901 | June 30,1902 | 5.50 | 5.50 | 150,000 | 150,000 |
| | INDIANA | | | | | | | |
| | Total for state | | | | [5] 656.63 | [5] 679.47 | 19,474,710 | 16,935,028 |
| 1 | Brownstown | Brownstown and Ewing Street Rwy. Co | July 1,1901 | June 30,1902 | 1.00 | 1.00 | 5,000 | 3,460 |
| 2 | Columbus | John S. Crump Electric Street Railway and Light Plant. | July 1,1901 | June 30,1902 | 4.40 | 4.40 | [1] 44,820 | [1] 44,820 |
| 3 | Evansville, Howell | Evansville Electric Rwy. Co | Nov. 1,1901 | Oct. 31,1902 | 30.50 | 30.50 | 600,000 | 600,000 |
| 4 | Fort Wayne | Fort Wayne Traction Co | Jan. 1,1901 | Dec. 31,1901 | 32.00 | 32.00 | 2,000,000 | 2,000,000 |
| 5 | Fort Wayne, Huntington | Fort Wayne and Southwestern Traction Co. | Jan. 1,1902 | June 30,1902 | 26.62 | 26.62 | 1,000,000 | ..... |
| 6 | Hammond, East Chicago, Whiting | Hammond, Whiting and East Chicago Electric Rwy. Co. | Apr. 1,1901 | Mar. 31,1902 | 24.90 | 24.90 | [2] 300,000 | [2] 300,000 |
| 7 | Indianapolis | Indianapolis Street Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 109.86 | 109.86 | 5,000,000 | 4,995,500 |
| 8 | Indianapolis, Broad Ripple | Broad Ripple Traction Co | July 1,1901 | June 30,1902 | 7.20 | 7.20 | 100,000 | 100,000 |
| 9 | Indianapolis, Shelbyville | Indianapolis, Shelbyville and Southeastern Traction Co. | Oct. 1,1902 | Dec. 31,1902 | 27.55 | 30.05 | 600,000 | 600,000 |
| 10 | Indianapolis, Greenfield | Indianapolis and Eastern Rwy. Co | July 1,1901 | June 30,1902 | 18.04 | 28.24 | 400,000 | 400,000 |
| 11 | Indianapolis, Anderson, Muncie, Marion, Alexandria, Elwood. | Union Traction Co. of Indiana | July 1,1901 | June 30,1902 | 142.92 | 150.06 | 5,000,000 | 4,632,475 |
| 12 | Indianapolis, Greenwood, Franklin. | Indianapolis, Greenwood and Franklin R. R. Co. | July 1,1901 | June 30,1902 | 19.00 | 22.00 | 285,000 | 150,000 |
| 13 | Jeffersonville, Port Fulton | Jeffersonville City Rwy. Co | July 1,1901 | June 30,1902 | 1.79 | 1.79 | 50,000 | 16,000 |
| 14 | Kokomo | Kokomo Railway and Light Co | Jan. 1,1902 | Dec. 31,1902 | 10.75 | 10.75 | 56,000 | 56,000 |
| 15 | Lafayette, West Lafayette, Soldiers Home. | Lafayette Street Rwy. Co | Feb. 1,1901 | Jan. 31,1902 | 14.66 | 14.66 | 450,000 | 300,050 |
| 16 | Logansport | Logansport Rwy. Co | Apr. 1,1902 | July 31,1902 | 6.16 | 6.16 | 100,000 | 100,000 |
| 17 | ....do | Logansport, Rochester and Northern Traction Co. | July 1,1902 | Dec. 31,1902 | 6.00 | 6.00 | ..... | ..... |
| 18 | Madison, West Madison | Madison Light and Rwy. Co | Nov. 1,1900 | Oct. 31,1901 | 4.00 | 4.00 | 75,000 | 75,000 |
| 19 | Michigan City | Lake Cities Electric Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 2.06 | 2.06 | 100,000 | 83,333 |
| 20 | New Albany | Highland R. R. Co | July 1,1901 | June 30,1902 | 2.00 | 2.00 | 25,000 | 24,500 |
| 21 | ....do | New Albany Street R. R. Co | July 1,1901 | June 30,1902 | 6.11 | 6.11 | 300,000 | ..... |
| 22 | Richmond, Milton, Cambridge City. | Richmond Street and Interurban Rwy. Co. | July 1,1901 | June 30,1902 | 30.50 | 30.50 | 600,000 | 400,000 |
| 23 | South Bend, Mishawaka, Elkhart, Goshen. | Indiana Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 48.75 | 48.75 | 1,000,000 | 1,000,000 |
| 24 | Terre Haute, Brazil | Terre Haute Electric Co | July 1,1901 | June 30,1902 | 38.09 | 38.09 | 1,000,000 | 1,000,000 |
| 25 | Vincennes | Vincennes Citizens Street Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 8.00 | 8.00 | 15,050 | 15,050 |
| 26 | Wabash, Peru | Wabash River Traction Co | Aug. 1,1901 | July 31,1902 | 19.85 | 19.85 | 350,000 | 20,000 |
| 27 | Washington | Washington Street Rwy. Co | Dec. 1,1901 | Nov. 30,1902 | 3.95 | 3.95 | [1] 18,840 | [1] 18,840 |
| | IOWA. | | | | | | | |
| | Total for state | | | | [9] 341.35 | [9] 350.00 | 11,039,700 | 10,541,200 |
| 1 | Boone | Boone Electric Street Railway and Light Co. (including Boone Suburban Rwy.). | Jan. 1,1901 | Dec. 31,1901 | 6.50 | 6.50 | 200,000 | 95,000 |
| 2 | Burlington | Burlington Railway and Light Co | Jan. 1,1901 | Dec. 31,1901 | 14.50 | 14.50 | 600,000 | 600,000 |
| 3 | Cedar Rapids, Marion | Cedar Rapids and Marion City Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 13.79 | 13.79 | 400,000 | 316,000 |
| 4 | Centerville | Peoples Street Rwy. Co | July 1,1901 | June 30,1902 | 1.62 | 1.62 | 12,000 | 12,000 |
| 5 | Clinton | State Electric Co | Jan. 1,1902 | Dec. 31,1902 | 8.52 | 8.52 | 500,000 | 500,000 |
| 6 | Council Bluffs, East Omaha | Omaha and Council Bluffs Railway and Bridge Co. | July 1,1901 | June 30,1902 | [11] 32.40 | [11] 33.40 | 1,500,000 | 1,500,000 |
| 7 | Davenport; Rock Island, Moline (Ill.). | Tri-City Rwy. Co | Oct. 1,1901 | Sept. 30,1902 | [12] 50.40 | [12] 50.40 | 1,200,000 | 1,200,000 |
| 8 | Des Moines | Des Moines City Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 63.37 | 63.37 | 1,305,000 | 1,305,000 |
| 9 | Des Moines, Colfax | Interurban Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 24.16 | 31.81 | 508,700 | 508,700 |
| 10 | Dubuque | Union Electric Co | July 1,1901 | June 30,1902 | 20.85 | 20.85 | 1,000,000 | 1,000,000 |
| 11 | Fort Dodge | Fort Dodge Light and Power Co | July 1,1901 | June 30,1902 | 1.50 | 1.50 | 125,000 | 125,000 |
| 12 | Fort Madison | Fort Madison Street Rwy. Co | June 1,1901 | May 31,1902 | 4.00 | 4.00 | 100,000 | 100,000 |
| 13 | Independence | Independence and Rush Park Street Rwy. Co. | Jan. 1,1901 | Dec. 31,1901 | 3.40 | 3.40 | 25,000 | 25,000 |

[1] Cash investment.
[2] Not reported; obtained from street railway journals and directories.
[3] Includes electric-light plant.
[4] Includes 5.50 miles in Wisconsin.
[5] Includes 9.97 miles in state owned by outside companies. Total owned by companies in state, 646.66 miles; total operated, 669.50 miles.
[6] Includes investments other than street railways.
[7] Floating debt; stock and bonds not yet issued.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $500,000 | $500,000 | | | | | | | $500,000 | $350,000 | 5 | $850,000 | $64,151 | 32 |
| 21,456 | 21,456 | | | | | | | | | | 21,456 | 2,861 | 33 |
| 210,000 | 210,000 | | | | | | | [2] 125,000 | [2] 110,000 | | [3] 320,000 | 18,824 | 34 |
| 150,000 | 150,000 | | | | | | | 125,000 | 125,000 | 5 | 275,000 | 24,730 | 35 |
| 75,000 | 33,450 | | | | | | | 75,000 | 45,000 | 6 | 78,450 | 15,116 | 36 |
| 60,000 | 50,000 | | | | | | | | | | 50,000 | 5,917 | 37 |
| 100,000 | 32,600 | | | | | | | 25,000 | 25,000 | 7 | 57,600 | 13,303 | 38 |
| 40,000 | 40,000 | | | | | | | | | | 40,000 | 5,674 | 39 |
| 300,000 | 300,000 | | | | | | | 300,000 | 225,000 | 5 | 525,000 | 30,347 | 40 |
| 9,250 | 9,250 | | | | | | | | | | 9,250 | 5,968 | 41 |
| 150,000 | 150,000 | | | | | | | 150,000 | 150,000 | 5 | [3] 300,000 | 35,294 | 42 |
| 100,000 | 100,000 | | | | | | | | | | 100,000 | 16,000 | 43 |
| 750,000 | 750,000 | | | | | | | 750,000 | 540,000 | 5 | 1,290,000 | 36,857 | 44 |
| 466,667 | 400,000 | | | | | | | 466,667 | 442,667 | 5 | [3] 842,667 | 97,081 | 45 |
| 600,000 | 600,000 | 2 | $12,000 | | | | | 550,000 | 522,000 | 5 | 1,122,000 | 64,557 | 46 |
| 350,000 | 350,000 | | | | | | | 300,000 | 300,000 | 5,6 | 650,000 | 28,261 | 47 |
| 200,000 | 200,000 | | | | | | | 200,000 | 200,000 | 5 | 400,000 | 29,564 | 48 |
| 750,000 | 750,000 | | | | | | | 750,000 | 730,000 | 4,5 | 1,480,000 | 62,107 | 49 |
| 150,000 | 150,000 | | | | | | | 150,000 | | | 150,000 | 27,273 | 50 |
| 17,301,377 | 15,245,887 | | | $2,173,333 | $1,689,141 | | $33,974 | 25,502,637 | 23,142,477 | | [4] 40,077,505 | 61,976 | |
| 5,000 | 3,460 | | | | | | | | | | 3,460 | 3,460 | 1 |
| 44,820 | 44,820 | | | | | | | | | | 44,820 | 10,186 | 2 |
| 600,000 | 600,000 | | | | | | | 1,200,000 | 1,087,000 | 4 | [6] 1,687,000 | 55,311 | 3 |
| 1,000,000 | 1,000,000 | | | 1,000,000 | 1,000,000 | | | 1,500,000 | 1,276,000 | 4 | 3,276,000 | 102,375 | 4 |
| 1,000,000 | | | | | | | | 2,000,000 | [7] 1,100,000 | | 1,100,000 | 41,322 | 5 |
| 300,000 | 300,000 | | | | | | | [2] 100,000 | [2] 100,000 | 5 | 400,000 | 16,064 | 6 |
| 5,000,000 | 4,995,500 | | | | | | | 10,000,000 | 9,746,760 | 4,5 | 14,742,260 | 134,191 | 7 |
| 100,000 | 100,000 | | | | | | | 400,000 | 400,000 | 5 | 500,000 | 69,444 | 8 |
| 600,000 | 600,000 | | | | | | | 500,000 | 500,000 | 5 | 1,100,000 | 39,927 | 9 |
| 400,000 | 400,000 | | | | | | | 450,000 | 450,000 | 5 | 850,000 | 47,118 | 10 |
| 4,000,000 | 4,000,000 | | | 1,000,000 | 632,475 | 5 | 31,624 | 5,000,000 | 4,972,000 | 5,6 | 9,604,475 | 67,202 | 11 |
| 285,000 | 150,000 | | | | | | | 300,000 | [8] 184,080 | | 334,080 | 17,583 | 12 |
| 50,000 | 16,000 | | | | | | | 25,000 | | 6 | 16,000 | 8,939 | 13 |
| 56,000 | 56,000 | | | | | | | 70,000 | 70,000 | 5 | [6] 126,000 | 11,721 | 14 |
| 410,000 | 260,050 | | | 40,000 | 40,000 | 6 | 2,350 | 225,000 | 225,000 | 6 | 525,050 | 35,815 | 15 |
| 100,000 | 100,000 | | | | | | | 275,000 | 125,000 | 5 | 225,000 | 36,526 | 16 |
| | | | | | | | | [7] 111,994 | [7] 111,994 | | 111,994 | 18,666 | 17 |
| 75,000 | 75,000 | | | | | | | 125,000 | | 5 | [3] 75,000 | 18,750 | 18 |
| 66,667 | 66,667 | | | 33,333 | 16,666 | | | 100,000 | 25,000 | 6 | [3] 108,333 | 52,589 | 19 |
| 25,000 | 24,500 | | | | | | | 75,000 | 49,000 | 5 | 73,500 | 36,750 | 20 |
| 200,000 | | | | 100,000 | | | | [7] 95,643 | [7] 95,643 | | 95,643 | 15,654 | 21 |
| 600,000 | 400,000 | | | | | | | | | | 400,000 | 13,115 | 22 |
| 1,000,000 | 1,000,000 | | | | | | | 1,000,000 | 900,000 | 5 | 1,900,000 | 38,974 | 23 |
| 1,000,000 | 1,000,000 | | | | | | | 1,500,000 | 1,400,000 | 5 | [3] 2,400,000 | 63,009 | 24 |
| 15,050 | 15,050 | | | | | | | 100,000 | 50,000 | 6 | 65,050 | 8,131 | 25 |
| 350,000 | 20,000 | | | | | | | 350,000 | 275,000 | 5 | 295,000 | 14,861 | 26 |
| 18,840 | 18,840 | | | | | | | | | | 18,840 | 4,770 | 27 |
| 10,089,700 | 9,591,200 | | 107,660 | 950,000 | 950,000 | | 10,000 | 10,030,000 | 6,770,333 | | 17,311,533 | [10] 45,641 | |
| 200,000 | 95,000 | | | | | | | 125,000 | 75,000 | 6 | [3] 170,000 | 26,154 | 1 |
| 600,000 | 625,000 | | | | | | | 750,000 | 625,000 | 5 | [3] 1,225,000 | 84,483 | 2 |
| 400,000 | 316,000 | 4½ | 14,220 | | | | | 250,000 | 165,000 | 5 | 481,000 | 34,880 | 3 |
| 12,000 | 12,000 | 20 | 2,400 | | | | | | | | 12,000 | 7,407 | 4 |
| 500,000 | 500,000 | | | | | | | 225,000 | 156,000 | 6 | 656,000 | 76,995 | 5 |
| 1,500,000 | 1,500,000 | ½ | 10,000 | | | | | 750,000 | 650,000 | 5,6 | [6] 2,150,000 | 66,358 | 6 |
| 1,200,000 | 1,200,000 | 6 | 72,000 | | | | | 2,000,000 | 800,000 | 5,6 | 2,000,000 | 39,683 | 7 |
| 1,055,000 | 1,055,000 | | | 250,000 | 250,000 | | | 3,000,000 | 1,718,000 | 5,6 | 3,023,000 | 47,704 | 8 |
| 508,700 | 508,700 | | | | | | | 475,000 | 475,000 | 5 | 983,700 | 40,716 | 9 |
| 500,000 | 500,000 | | | 500,000 | 500,000 | | | | | | [12] 1,000,000 | 47,962 | 10 |
| 125,000 | 125,000 | | | | | | | 75,000 | 75,000 | 6 | [3] 200,000 | 133,333 | 11 |
| 100,000 | 100,000 | 2½ | 2,500 | | | | | 25,000 | 17,000 | 5 | 117,000 | 29,250 | 12 |
| 25,000 | 25,000 | | | | | | | | | | 25,000 | 7,353 | 13 |

[3] Floating debt; bonds not yet issued.
[9] Exclusive of 36.90 miles lying outside of state. Total owned by companies in state, 378.25 miles; total operated, 386.90 miles.
[10] Exclusive of $47,704, investments other than street railways and electric-light plants owned.
[11] Includes 4.40 miles in Nebraska.
[12] Includes 31.00 miles in Illinois.
[13] Includes electric-light plant and other investments.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | IOWA—Continued. | | | | | | | |
| 14 | Keokuk | Keokuk Electric Railway and Power Co. | Jan. 1,1902 | Dec. 31,1902 | 6.50 | 6.50 | $400,000 | $400,000 |
| 15 | Marshalltown | Marshalltown Light, Power and Rwy. Co. | July 1,1901 | June 30,1902 | 3.60 | 3.60 | 334,000 | 167,000 |
| 16 | Mason City, Clear Lake | Mason City and Clear Lake Traction Co | Aug. 1,1901 | July 31,1902 | 17.34 | 17.34 | 200,000 | 200,000 |
| 17 | Muscatine | Citizens Railway and Light Co. | July 1,1901 | June 30,1902 | 8.60 | 8.60 | 200,000 | 200,000 |
| 18 | Ottumwa | Ottumwa Traction and Light Co | Oct. 1,1901 | Sept. 30,1902 | 10.00 | 10.00 | 500,000 | 500,000 |
| 19 | Red Oak | Red Oak Street Rwy. Co | May 27,1901 | May 26,1902 | 1.20 | 1.20 | 50,000 | 7,500 |
| 20 | Sioux City; South Sioux City (Nebr.). | Sioux City Traction Co | June 1,1901 | May 31,1902 | [2]43.00 | [2]43.00 | 1,200,000 | 1,100,000 |
| 21 | Tama, Toledo | Tama and Toledo Electric Railway and Light Co. | Feb. 1,1901 | Jan. 31,1902 | 3.00 | 3.00 | 80,000 | 80,000 |
| 22 | Waterloo, Cedar Falls | Waterloo and Cedar Falls Rapid Transit Co. | Jan. 1,1901 | Dec. 31,1901 | 40.00 | 40.00 | 600,000 | 600,000 |
| | KANSAS. | | | | | | | |
| | Total for state | | | | [4]195.81 | [4]195.81 | 6,027,000 | 5,912,000 |
| 1 | Arkansas City | Arkansas City Street Rwy. Co | July 1, 1901 | June 30,1902 | 5.50 | 5.50 | 100,000 | 50,000 |
| 2 | Atchison | Atchison Railway, Light and Power Co | July 1, 1901 | June 30,1902 | 9.00 | 9.00 | 100,000 | 100,000 |
| 3 | Fort Scott | Fort Scott Consolidated Supply Co.—Street Railway Department. | July 1, 1901 | June 30,1902 | 9.00 | 9.00 | 75,000 | 75,000 |
| 4 | Hutchinson | Hutchinson Street Rwy. Co | Jan. 1, 1902 | Dec. 31,1902 | 7.83 | 7.83 | 100,000 | 45,000 |
| 5 | Iola, Laharpe | Iola Electric R. R. Co | Dec. 27, 1901 | Dec. 26,1902 | 8.25 | 8.25 | 150,000 | 150,000 |
| 6 | Junction City, Fort Riley | Electric Railway and Ice Co | July 1, 1901 | June 30,1902 | 4.50 | 4.50 | 50,000 | 40,000 |
| 7 | Leavenworth | Kansas City–Leavenworth R. R. Co.[5] | | | 39.00 | 39.00 | 3,750,000 | 3,750,000 |
| 8 | Pittsburg, Frontenac | Pittsburg R. R. Co | July 1, 1901 | June 30,1902 | 11.75 | 11.75 | 125,000 | 125,000 |
| 9 | Strong, Cottonwood Falls | The Consolidated Street Rwy. Co | July 1, 1901 | June 30,1902 | 2.05 | 2.05 | 10,000 | 10,000 |
| 10 | Topeka | Topeka Rwy. Co | July 1, 1901 | June 30,1902 | 28.63 | 28.63 | 1,250,000 | 1,250,000 |
| 11 | Wichita | Wichita Railroad and Light Co | July 1, 1901 | June 30,1902 | 18.50 | 18.50 | 300,000 | 300,000 |
| 12 | Winfield | Union Street Rwy. Co | July 1, 1901 | June 30,1902 | 6.25 | 6.25 | [6]17,000 | [6]17,000 |
| | KENTUCKY. | | | | | | | |
| | Total for state | | | | [7]284.35 | [7]296.76 | 12,355,000 | 11,330,900 |
| 1 | Bowling Green | Bowling Green Rwy. Co | Sept. 16,1901 | Sept. 15,1902 | 4.00 | 4.00 | 20,000 | 20,000 |
| 2 | Covington, Newport; Cincinnati (Ohio). | Cincinnati, Newport and Covington Rwy. Co. (South Covington and Cincinnati Street Rwy. Co.). | Jan. 1,1901 | Dec. 31,1901 | [9]50.00 | [9]56.00 | 4,500,000 | 3,500,000 |
| 3 | Frankfort | Frankfort and Suburban Rwy. Co | July 1,1901 | June 30,1902 | 7.26 | 7.26 | 10,000 | 5,000 |
| 4 | Henderson | Henderson Street Rwy. Co | July 1,1901 | June 30,1902 | 5.50 | 5.50 | 50,000 | 50,000 |
| 5 | Lexington | Lexington Rwy. Co | May 1,1901 | Apr. 30,1902 | 15.13 | 15.13 | 800,000 | 800,000 |
| 6 | Lexington, Georgetown | Georgetown and Lexington Traction Co | June 1,1902 | July 17,1902 | 12.08 | 13.08 | 250,000 | 250,000 |
| 7 | Louisville | Louisville Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 142.00 | 142.00 | 6,000,000 | 6,000,000 |
| 8 | Louisville, Anchorage | Louisville, Anchorage and Pewee Valley Electric Rwy. Co. | Dec. 1,1901 | Nov. 30,1902 | 14.10 | 18.60 | 350,000 | 350,000 |
| 9 | Louisville; New Albany (Ind.) | Kentucky and Indiana Bridge and R. R. Co. | July 1,1901 | June 30,1902 | [11]5.13 | [11]6.04 | 75,000 | 75,000 |
| 10 | Maysville | Maysville Street Railroad and Transfer Co. | July 1,1901 | June 30,1902 | 4.25 | 4.25 | 50,000 | 30,900 |
| 11 | Owensboro | Owensboro City R. R. Co | Jan. 1,1902 | June 30,1902 | 8.50 | 8.50 | 50,000 | 50,000 |
| 12 | Paducah | Paducah City Rwy. Co | July 1,1901 | June 30,1902 | 16.00 | 16.00 | 200,000 | 200,000 |
| | LOUISIANA. | | | | | | | |
| | Total for state | | | | 198.52 | 198.84 | 12,569,700 | 12,484,900 |
| 1 | Baton Rouge | Baton Rouge Electric and Gas Co | July 1,1901 | June 30,1902 | 3.75 | 3.75 | 50,000 | 50,000 |
| 2 | Lake Charles | Lake Charles Street Rwy. Co | July 1,1901 | June 30,1902 | 2.11 | 2.11 | 50,000 | 11,900 |
| 3 | New Orleans | St. Charles Street R. R. Co | July 1,1901 | June 30,1902 | 18.57 | 18.57 | 1,000,000 | 953,300 |
| 4 | .....do | Orleans R. R. Co | July 1,1901 | June 30,1902 | 11.21 | 11.53 | 234,700 | 234,700 |
| 5 | .....do | New Orleans Rwys. Co.[12] | July 1,1901 | June 30,1902 | 115.00 | 115.00 | 7,500,000 | 7,500,000 |
| 6 | .....do | New Orleans and Carrollton Railroad, Light and Power Co.[13] | July 1,1901 | June 30,1902 | 35.53 | 35.53 | 3,500,000 | 3,500,000 |
| 7 | New Orleans, Gretna | Algiers, McDonoghville and Gretna R. R. Co | July 1,1901 | June 30,1902 | 3.55 | 3.55 | 35,000 | 35,000 |
| 8 | Shreveport | Shreveport Belt Rwy. Co. (Shreveport Traction Co.). | July 1,1901 | June 30,1902 | 8.80 | 8.80 | 200,000 | 200,000 |
| | MAINE. | | | | | | | |
| | Total for state | | | | [14]328.50 | [14]330.40 | 6,444,300 | 5,053,055 |
| 1 | Augusta, Winthrop, Gardiner | Augusta, Winthrop and Gardiner Rwy. Co. | July 1,1901 | June 30,1902 | 13.11 | 13.11 | 150,000 | 120,000 |
| 2 | Bangor, Brewer | Public Works Co.—Street Railway and Lighting Department. | July 1,1901 | June 30,1902 | 10.80 | 10.80 | 600,000 | 548,989 |
| 3 | Bangor, Corinth, Glenburn | Penobscot Central Rwy. Co | July 1,1901 | June 30,1902 | 27.31 | 27.59 | 250,000 | 250,000 |
| 4 | Bangor, Orono, Old Town | Bangor, Orono and Old Town Rwy. Co | July 1,1901 | June 30,1902 | 16.70 | 16.70 | 125,000 | 125,000 |
| 5 | Bangor, Hampden | Bangor, Hampden and Winterport Rwy. Co. | July 1,1901 | June 30,1902 | 5.40 | 7.02 | 500,000 | 60,000 |
| 6 | Biddeford, Saco, Old Orchard | Biddeford and Saco R. R. Co | July 1,1901 | June 30,1902 | 8.15 | 8.15 | 100,000 | 50,000 |
| 7 | Calais, Milltown; St. Stephens (N. B., Canada). | Calais Street Rwy. Co | July 1,1901 | June 30,1902 | [17]7.10 | [17]7.10 | 100,000 | 100,000 |

[1] Includes electric-light plant.
[2] Includes 1.50 miles in Nebraska.
[3] Includes investments other than street railways.
[4] Includes 45.55 miles in state owned by outside companies. Total owned and operated by companies in state, 150.26 miles.
[5] This company failed to make a report; the information given was obtained from street-railway journals and directories.
[6] Cash investment.
[7] Exclusive of 6.47 miles lying outside of state, but including 6.87 miles in state owned by outside companies. Total owned by companies in state, 283.95 miles; total operated, 296.36 miles.
[8] Includes electric-light plants and other investments.
[9] Includes 6 miles in Ohio.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $400,000 | $400,000 | | | | | | | $250,000 | $250,000 | 5 | [1] $650,000 | $100,000 | 14 |
| 334,000 | 167,000 | 2 | $3,340 | | | | | 100,000 | 93,333 | 6 | [1] 260,333 | 72,315 | 15 |
| 200,000 | 200,000 | | | | | | | 100,000 | 91,000 | 6 | 291,000 | 16,782 | 16 |
| 200,000 | 200,000 | | | | | | | 135,000 | 135,000 | 5 | 335,000 | 38,953 | 17 |
| 300,000 | 300,000 | | | $200,000 | $200,000 | 5 | $10,000 | 300,000 | 300,000 | 5 | [1] 800,000 | 80,000 | 18 |
| 50,000 | 7,500 | | | | | | | | | | 7,500 | 6,250 | 19 |
| 1,200,000 | 1,100,000 | | | | | | | 750,000 | 750,000 | 5 | [2] 1,850,000 | 43,023 | 20 |
| 80,000 | 80,000 | 4 | 3,200 | | | | | 20,000 | 20,000 | 6 | [1] 100,000 | 33,333 | 21 |
| 600,000 | 600,000 | | | | | | | 700,000 | 375,000 | 5,6 | 975,000 | 24,375 | 22 |
| 6,027,000 | 5,912,000 | | 4,000 | | | | | 3,375,000 | 1,115,000 | | [1] 7,027,000 | 46,766 | |
| 100,000 | 50,000 | | | | | | | | | | 50,000 | 9,091 | 1 |
| 100,000 | 100,000 | 4 | 4,000 | | | | | 50,000 | 50,000 | 6 | 150,000 | 16,667 | 2 |
| 75,000 | 75,000 | | | | | | | 60,000 | 50,000 | 5 | 125,000 | 13,889 | 3 |
| 100,000 | 45,000 | | | | | | | 100,000 | | | 45,000 | 5,747 | 4 |
| 150,000 | 150,000 | | | | | | | 150,000 | 150,000 | 6 | 300,000 | 36,364 | 5 |
| 50,000 | 40,000 | | | | | | | 40,000 | 40,000 | 5 | 80,000 | 17,778 | 6 |
| 3,750,000 | 3,750,000 | | | | | | | 2,000,000 | | | 3,750,000 | 96,154 | 7 |
| 125,000 | 125,000 | | | | | | | 125,000 | 125,000 | 5 | [1] 250,000 | 21,277 | 8 |
| 10,000 | 10,000 | | | | | | | | | | 10,000 | 4,878 | 9 |
| 1,250,000 | 1,250,000 | | | | | | | 600,000 | 450,000 | 4½ | 1,700,000 | 59,378 | 10 |
| 300,000 | 300,000 | | | | | | | 250,000 | 250,000 | 5 | [1] 550,000 | 29,730 | 11 |
| 17,000 | 17,000 | | | | | | | | | | 17,000 | 2,720 | 12 |
| 9,855,000 | 8,830,900 | | 246,000 | 2,500,000 | 2,500,000 | | 125,000 | 14,930,000 | 12,204,300 | | [3] 23,535,200 | 82,885 | |
| 20,000 | 20,000 | | | | | | | 20,000 | 20,000 | 5 | 40,000 | 10,000 | 1 |
| 4,500,000 | 3,500,000 | 3 | [10] 90,000 | | | | | 4,000,000 | 3,600,000 | 5,6 | 7,100,000 | 142,000 | 2 |
| 10,000 | 5,000 | | | | | | | 30,000 | 30,000 | 6 | 35,000 | 4,821 | 3 |
| 50,000 | 50,000 | | | | | | | 60,000 | 60,000 | 6 | 110,000 | 20,000 | 4 |
| 800,000 | 800,000 | 2 | 16,000 | | | | | 1,500,000 | 875,000 | 5,6 | [1] 1,675,000 | 110,707 | 5 |
| 250,000 | 250,000 | | | | | | | 250,000 | 200,000 | 5 | 450,000 | 37,252 | 6 |
| 3,500,000 | 3,500,000 | 4 | 140,000 | 2,500,000 | 2,500,000 | 5 | 125,000 | 8,000,000 | 6,349,300 | 4½, 5, 6 | [3] 12,349,300 | 86,967 | 7 |
| 350,000 | 350,000 | | | | | | | 500,000 | 500,000 | 5 | 850,000 | 60,284 | 8 |
| 75,000 | 75,000 | | | | | | | 50,000 | 50,000 | 4 | 125,000 | 24,366 | 9 |
| 50,000 | 30,900 | | | | | | | 20,000 | 20,000 | 6 | 50,900 | 11,976 | 10 |
| 50,000 | 50,000 | | | | | | | 100,000 | 100,000 | 6 | 150,000 | 17,647 | 11 |
| 200,000 | 200,000 | | | | | | | 400,000 | 400,000 | 6 | [1] 600,000 | 37,500 | 12 |
| 7,469,700 | 7,384,900 | | 107,198 | 5,100,000 | 5,100,000 | | 255,000 | 10,929,000 | 10,010,000 | | [1] 22,494,900 | 113,313 | |
| 50,000 | 50,000 | | | | | | | 45,000 | 41,000 | 5 | [1] 91,000 | 24,267 | 1 |
| 50,000 | 11,900 | | | | | | | | | | 11,900 | 5,640 | 2 |
| 1,000,000 | 953,300 | 6 | 57,198 | | | | | 600,000 | 300,000 | 4 | 1,253,300 | 67,491 | 3 |
| 234,700 | 234,700 | | | | | | | 400,000 | 400,000 | 6 | 634,700 | 56,619 | 4 |
| 5,000,000 | 5,000,000 | 1 | 50,000 | 2,500,000 | 2,500,000 | 5 | 125,000 | 6,600,000 | 6,520,000 | 4, 5, 6 | 14,020,000 | 121,913 | 5 |
| 900,000 | 900,000 | | | 2,600,000 | 2,600,000 | 5 | 130,000 | 3,284,000 | 2,749,000 | 5,6 | 6,249,000 | 175,880 | 6 |
| 35,000 | 35,000 | | | | | | | | | | 35,000 | 9,859 | 7 |
| 200,000 | 200,000 | | | | | | | | | | 200,000 | 22,727 | 8 |
| 6,444,300 | 5,053,055 | | 67,829 | | | | | 7,213,000 | 6,155,000 | | 11,208,055 | [15] 32,116 | |
| 150,000 | 120,000 | 2 | 2,400 | | | | | 250,000 | 250,000 | 4,6 | [3] 370,000 | 28,223 | 1 |
| 600,000 | 548,989 | | | | | | | 600,000 | 596,000 | 5 | [11] 1,144,989 | [16] 79,601 | 2 |
| 250,000 | 250,000 | | | | | | | 250,000 | 250,000 | 5 | 500,000 | 18,308 | 3 |
| 125,000 | 125,000 | | | | | | | 125,000 | 125,000 | 6 | 250,000 | 14,970 | 4 |
| 500,000 | 60,000 | | | | | | | 40,000 | 40,000 | 5 | 100,000 | 18,519 | 5 |
| 100,000 | 50,000 | | | | | | | 150,000 | 150,000 | 4 | 200,000 | 24,540 | 6 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | 200,000 | 28,169 | 7 |

[10] Dividend on $3,000,000 only.
[11] Includes .47 mile in Indiana.
[12] This is a combined report of the New Orleans City Railroad Company for 9 months, and the New Orleans Railways Company for 3 months.
[13] This is a combined report of the New Orleans and Carrollton Railroad Company for 6 months, and the New Orleans and Carrollton Railroad, Light and Power Company for 6 months.
[14] Exclusive of 3.05 miles lying outside of state. Total owned by companies in state, 331.55 miles; total operated, 333.45 miles.
[15] Exclusive of $659,960, investments other than street railways and electric-light plants owned.
[16] Exclusive of $285,300, investments other than street railways and electric-light plants owned.
[17] Includes 3.05 miles in New Brunswick, Canada.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | State and location. | Name of company. | Period covered by report. From— | To— | Length, single-track miles. Owned. | Operated. | Capital stock. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | MAINE—Continued. | | | | | | | |
| 8 | Fairfield, Benton | Benton and Fairfield Rwy. Co | July 1, 1901 | June 30, 1902 | 4.37 | 4.37 | $20,000 | $20,000 |
| 9 | Fryeburg | Fryeburg Horse R. R. Co. | July 1, 1901 | June 30, 1902 | 3.00 | 3.00 | 6,000 | 5,175 |
| 10 | Kennebunkport | Atlantic Shore Line Rwy. Co. | July 1, 1901 | June 30, 1902 | 1.58 | 1.58 | 500,000 | 30,000 |
| 11 | Lewiston, Bath, Brunswick | Lewiston, Brunswick and Bath Street Rwy. Co. | July 1, 1901 | June 30, 1902 | 56.18 | 56.18 | 638,300 | 627,100 |
| 12 | Norway, South Paris | Norway and Paris Street Rwy. Co. | July 1, 1901 | June 30, 1902 | 2.14 | 2.14 | 25,000 | 25,000 |
| 13 | Portland | Portland R. R. Co.[1] | July 1, 1901 | June 30, 1902 | 89.63 | 89.63 | 2,000,000 | 1,999,591 |
| 14 | Portsmouth (N. H.), Kittery, York. | Portsmouth, Kittery and York Street Rwy. Co. | July 1, 1901 | June 30, 1902 | 15.70 | 15.70 | 230,000 | 221,400 |
| 15 | Rockland, Thomaston, Camden, Rockport. | Rockland, Thomaston and Camden Street Rwy. Co. | July 1, 1901 | June 30, 1902 | 21.64 | 21.64 | 300,000 | 250,000 |
| 16 | Sanford, Kennebunk | Sanford and Cape Porpoise Rwy. Co | July 1, 1901 | June 30, 1902 | 21.92 | 25.39 | 250,000 | 249,000 |
| 16a | Cape Porpoise | Mousam River R. R. Co. (lessor) | July 1, 1901 | June 30, 1902 | 3.47 | ..... | 200,000 | 91,800 |
| 17 | Skowhegan, Norridgewock | Skowhegan and Norridgewock Railway and Power Co. | July 1, 1901 | June 30, 1902 | 5.85 | 5.85 | 50,000 | 50,000 |
| 18 | Skowhegan, Madison | Somerset Traction Co. | July 1, 1901 | June 30, 1902 | 12.68 | 12.68 | 200,000 | 30,000 |
| 19 | Waterville, Fairfield | Waterville and Fairfield Railway and Light Co. | July 1, 1901 | June 30, 1902 | 4.82 | 4.82 | 200,000 | 200,000 |
| | MARYLAND. | | | | | | | |
| | Total for state | | | | [5] 455.44 | [5] 456.63 | 39,855,000 | 16,036,006 |
| 1 | Baltimore, Emory Grove, Brooklyn, Ellicott City. | United Railways and Electric Co | Jan. 1, 1901 | Dec. 31, 1901 | 365.12 | 365.12 | 38,000,000 | 15,073,306 |
| 2 | Cumberland | Cumberland Electric Rwy. Co. | July 1, 1901 | June 30, 1902 | 7.07 | 7.07 | 100,000 | 100,000 |
| 3 | Frederick, Middletown, Myersville. | Frederick and Middletown Rwy. Co. | July 1, 1901 | June 30, 1902 | 8.76 | 14.68 | 100,000 | 43,500 |
| 3a | ..... | Frederick City Suburban Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | .81 | ..... | 5,000 | 4,200 |
| 3b | ..... | Myersville and Catoctin Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | 5.11 | ..... | 50,000 | 22,000 |
| 4 | Chevy Chase, Kensington | Kensington Rwy. Co | Sept. 13, 1902 | Jan. 3, 1903 | 2.53 | 2.53 | 25,000 | 18,000 |
| 5 | Frostburg and vicinity | Cumberland and Westernport Electric Rwy. Co. | Apr. 24, 1902 | June 30, 1902 | 8.72 | 8.72 | 1,000,000 | 200,000 |
| 6 | Hagerstown, Williamsport, Funkstown. | Hagerstown Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 13.70 | 13.70 | 200,000 | 200,000 |
| 7 | Washington (D. C.), Takoma | Baltimore and Washington Transit Co. | Jan. 1, 1902 | Dec. 31, 1902 | [7] 2.00 | [7] 2.00 | 100,000 | 100,000 |
| 8 | Washington (D. C.), Glen Echo | Washington and Glen Echo R. R. Co | Jan. 1, 1901 | Dec. 31, 1901 | [8] 10.40 | [8] 11.59 | 200,000 | 200,000 |
| 9 | Washington (D. C.), Halpin, Rockville. | Washington and Rockville Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 10.90 | 10.90 | 50,000 | 50,000 |
| 10 | Washington (D. C.), Woodside, Forest Glen. | Washington, Woodside and Forest Glen Railway and Power Co. | Jan. 1, 1901 | Dec. 31, 1901 | 2.72 | 2.72 | 25,000 | 25,000 |
| | MASSACHUSETTS. | | | | | | | |
| | Total for state | | | | [9] 2,507.58 | [9] 2,578.42 | 70,115,000 | 59,378,602 |
| | Amesbury; Hampton (N. H.) | Amesbury and Hampton Street Rwy. Co. See Exeter, Hampton and Amesbury Rwy. Co. of Exeter, N. H. | | | | | | |
| 1 | Amherst, Sunderland | Amherst and Sunderland Street Rwy. Co. | Oct. 1, 1901 | Sept. 30, 1902 | 14.87 | 14.87 | 93,000 | 93,000 |
| 2 | Attleboro, North Attleboro, Wrentham; Pawtucket (R. I.). | Interstate Consolidated Street Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | [12] 27.64 | [12] 27.64 | 380,000 | 380,000 |
| 3 | Boston, Arlington, Concord, Newton, Waltham, Watertown, Woburn. | Lexington and Boston Street Rwy. Co. | Oct. 1, 1901 | Sept. 30, 1902 | 30.78 | 37.04 | 525,000 | 525,000 |
| 3a | ..... | Concord and Boston Street Rwy. Co. (lessor). | Sept. 30, 1901 | Oct. 19, 1901 | 2.43 | ..... | 50,000 | 50,000 |
| 4 | Boston, Brockton, Quincy, Taunton, Fall River; Providence (R. I.). | Old Colony Street Rwy. Co. | Oct. 1, 1901 | Sept. 30, 1902 | 359.53 | [13] 379.26 | 5,781,000 | 5,777,700 |
| 4a | ..... | Newport and Fall River Street Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | [13] 19.73 | ..... | 750,000 | 750,000 |
| 5 | Boston, Andover, Chelsea, Everett, Gloucester, Haverhill, Lawrence, Lynn, Malden, Marblehead, Peabody, Reading, Salem, Woburn; Nashua (N. H.). | Boston and Northern Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 383.20 | [14] 440.38 | 6,523,000 | 6,143,000 |
| 5a | ..... | East Middlesex Street Rwy. Co. (lessor) | Oct. 1, 1901 | Sept. 30, 1902 | 19.39 | ..... | 300,000 | 297,700 |
| 5b | ..... | Boston and Chelsea R. R. Co. (lessor) | Oct. 1, 1901 | Sept. 30, 1902 | 4.15 | ..... | 300,000 | 121,000 |
| 5c | ..... | Winnisimmet R. R. Co. (lessor) | Oct. 1, 1901 | Sept. 30, 1902 | 2.19 | ..... | 75,000 | 50,000 |
| 5d | ..... | Boston and Revere Electric Street Rwy. Co. (lessor). | Oct. 1, 1901 | Sept. 30, 1902 | 3.85 | ..... | 50,000 | 50,000 |
| 5e | ..... | Gloucester and Rockport Street Rwy. Co. (lessor). | Oct. 1, 1901 | Sept. 30, 1902 | 1.57 | ..... | 30,000 | 30,000 |
| 5f | ..... | Nashua Street Rwy. Co. (lessor) | July 1, 1901 | June 30, 1902 | [14] 15.52 | ..... | 325,000 | 300,000 |
| 6 | Boston, Cambridge, Chelsea, Everett, Malden, Medford, Newton, Somerville, Brookline, Watertown. | Boston Elevated Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | [17] 20.58 | [17] 404.94 | 20,000,000 | 12,383,310 |
| 6a | ..... | West End Street Rwy. Co. (lessor) | Oct. 1, 1901 | Sept. 30, 1902 | 374.59 | ..... | 16,400,000 | 15,485,000 |

[1] Includes Portland and Yarmouth Elec. Rwy. Co., Portland and Cape Elizabeth Elec. Rwy. Co., and Westbrook, Windham and Naples Elec. Rwy. Co.
[2] Includes investments other than street railways.
[3] Includes electric-light plant.
[4] Exclusive of $268,550, investments other than street railways and electric-light plants owned.
[5] Exclusive of 1.80 miles lying outside of state, but including 19.40 miles in state owned by outside companies. Total owned by companies in state, 437.84 miles; total operated, 439.03 miles.
[6] Exclusive of $30,000, investments other than street railways and electric-light plants owned.
[7] Includes .50 mile in District of Columbia.
[8] Includes 1.30 miles in District of Columbia.
[9] Exclusive of 41.26 miles lying outside of state, but including 23.19 miles in state owned by outside companies. Total owned by companies in state, 2,525.65 miles; total operated, 2,596.49 miles.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $20,000 | $20,000 | | | | | | | | | | $20,000 | $4,577 | 8 |
| 6,000 | 5,175 | | | | | | | | | | 5,175 | 1,725 | 9 |
| 500,000 | 20,000 | | | | | | | | | | 30,000 | 18,987 | 10 |
| 638,300 | 627,100 | | | | | | | $1,000,000 | $1,000,000 | 5 | 1,627,100 | 28,962 | 11 |
| 25,000 | 25,000 | | | | | | | 18,000 | 18,000 | 5 | 43,000 | 20,093 | 12 |
| 2,000,000 | 1,999,591 | 1¼, 3 | $59,898 | | | | | 3,000,000 | 1,950,000 | 3½ to 5 | [2] 3,949,591 | 44,066 | 13 |
| 280,000 | 221,400 | 2½ | 5,531 | | | | | 200,000 | 200,000 | 6 | 421,400 | 26,841 | 14 |
| 300,000 | 250,000 | | | | | | | 800,000 | 800,000 | 4 to 6 | [3] 1,050,000 | [4] 86,111 | 15 |
| 250,000 | 249,000 | | | | | | | 250,000 | 246,000 | 5 | 495,000 | 22,582 | 16 |
| 200,000 | 91,800 | | | | | | | 65,000 | 65,000 | 6 | 156,800 | 45,187 | 16a |
| 50,000 | 50,000 | | | | | | | 50,000 | 50,000 | 6 | 100,000 | 17,094 | 17 |
| 200,000 | 30,000 | | | | | | | 75,000 | 75,000 | 5 | [2] 105,000 | 8,281 | 18 |
| 200,000 | 200,000 | | | | | | | 240,000 | 240,000 | 5, 6 | [3] 440,000 | 91,286 | 19 |
| 25,855,000 | 15,962,700 | | 4,420 | $14,000,000 | $73,306 | | | 53,480,000 | 52,359,194 | | 68,395,200 | [6] 156,142 | |
| 24,000,000 | 15,000,000 | | | 14,000,000 | 73,306 | | | 52,000,000 | 51,381,694 | 4, 4½, 5, 6 | 66,455,000 | 182,009 | 1 |
| 100,000 | 100,000 | 4 | 4,000 | | | | | 75,000 | 75,000 | 5 | 175,000 | [6] 20,509 | 2 |
| 100,000 | 43,500 | | | | | | | 70,000 | 70,000 | 5 | 113,500 | 12,957 | 3 |
| 5,000 | 4,200 | 10 | 420 | | | | | | | | 4,200 | 5,185 | 3a |
| 50,000 | 22,000 | | | | | | | 35,000 | 35,000 | 5 | 57,000 | 11,155 | 3b |
| 25,000 | 18,000 | | | | | | | 15,000 | 12,500 | 6 | 30,500 | 12,055 | 4 |
| 1,000,000 | 200,000 | | | | | | | 250,000 | 200,000 | 5 | 400,000 | 45,872 | 5 |
| 200,000 | 200,000 | | | | | | | 200,000 | 200,000 | 6 | [3] 400,000 | 29,197 | 6 |
| 100,000 | 100,000 | | | | | | | 500,000 | 50,000 | 5 | 150,000 | 75,000 | 7 |
| 200,000 | 200,000 | | | | | | | 250,000 | 250,000 | 6 | 450,000 | 43,269 | 8 |
| 50,000 | 50,000 | | | | | | | 45,000 | 45,000 | 5 | 95,000 | 8,716 | 9 |
| 25,000 | 25,000 | | | | | | | 40,000 | 40,000 | 6 | 65,000 | 23,897 | 10 |
| 63,715,000 | 52,978,602 | | 2,670,455 | 6,400,000 | 6,400,000 | | $512,000 | 40,823,000 | 37,966,942 | | [10] 97,345,544 | [11] 39,067 | |
| 93,000 | 93,000 | 4 | [12] 2,020 | | | | | 51,500 | 51,500 | 5 | 144,500 | 9,718 | 1 |
| 380,000 | 380,000 | | | | | | | 150,000 | 150,000 | 4 | [14] 530,000 | 19,175 | 2 |
| 525,000 | 525,000 | 3½ | [12] 15,063 | | | | | 350,000 | 350,000 | 4½ | 875,000 | 28,428 | 3 |
| 50,000 | 50,000 | | | | | | | | | | 50,000 | 20,576 | 3a |
| 5,781,000 | 5,777,700 | 5 | 288,885 | | | | | 5,950,000 | 4,669,000 | 4½, 5, 6 | 10,446,700 | 29,057 | 4 |
| 750,000 | 750,000 | 6 | [12] 39,210 | | | | | 650,000 | 543,500 | 5, 6 | [3] 1,293,500 | 65,560 | 4a |
| 6,523,000 | 6,143,000 | 6 | [12] 367,380 | | | | | 9,939,500 | 8,444,500 | 5, 6 | 14,587,500 | 38,068 | 5 |
| 300,000 | 297,700 | 10 | 29,770 | | | | | 220,000 | 220,000 | 4, 5 | 517,700 | 26,699 | 5a |
| 300,000 | 121,000 | 6 | 7,260 | | | | | | | | 121,000 | 29,157 | 5b |
| 75,000 | 50,000 | 6 | 3,000 | | | | | | | | 50,000 | 22,831 | 5c |
| 50,000 | 50,000 | 5 | 2,500 | | | | | 50,000 | 34,000 | 5 | 84,000 | 21,818 | 5d |
| 30,000 | 30,000 | 6 | 1,800 | | | | | | | | 30,000 | 19,108 | 5e |
| 325,000 | 300,000 | 5 | 15,000 | | | | | 150,000 | 150,000 | 4 | 450,000 | 28,996 | 5f |
| 20,000,000 | 12,383,310 | 6 | [12] 600,000 | | | | | | | | 12,383,310 | [11] 591,414 | 6 |
| 10,000,000 | 9,085,000 | 7 | 635,950 | 6,400,000 | 6,400,000 | 8 | 512,000 | 14,666,000 | 14,666,000 | 4, 4½, 5 | 30,151,000 | 80,491 | 6a |

[10] Capital reported for 92 companies only, representing 2,486.32 miles of track owned. (See note 3, page 46.) In addition to capital stock and funded debt these companies have bills payable amounting to $16,241,821; total of capital liabilities and bills payable, $113,375,354, or $45,600 per mile of track owned. (See note 14; note 1, page 248; and note 2, page 250.)

[11] Exclusive of $212,011, investments other than street railways and electric-light plants owned.

[12] Part of capital stock issued during the year reported.

[13] Includes 6.01 miles in Rhode Island.

[14] This company has also a large floating debt.

[15] Includes 19.73 miles in Rhode Island.

[16] Includes 15.52 miles in New Hampshire.

[17] Includes 16.02 miles elevated.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | PERIOD COVERED BY REPORT. To— | LENGTH, SINGLE-TRACK MILES. Owned. | LENGTH, SINGLE-TRACK MILES. Operated. | CAPITAL STOCK. Total par value. Authorized. | CAPITAL STOCK. Total par value. Issued. |
|---|---|---|---|---|---|---|---|---|
| | MASSACHUSETTS—Continued. | | | | | | | |
| 6b | ..... | Somerville Horse R. R. Co. (lessor) ..... | Oct. 1,1901 | Sept. 30,1902 | 8.08 | ..... | $153,000 | $153,000 |
| 7 | Woburn, Billerica..... | Lowell and Boston Street Rwy. Co ..... | Oct. 1,1901 | Sept. 30,1902 | 9.64 | 9.78 | 90,000 | 90,000 |
| 8 | Braintree, Weymouth, Hingham, Hull, Cohasset. | New York, New Haven and Hartford R. R. Co. (Nantasket System).[2] | July 1,1901 | June 30,1902 | 39.33 | 39.33 | ([3]) | ([3]) |
| 9 | Canton, Stoughton ..... | Blue Hill Street Rwy. Co..... | Oct. 1,1901 | Sept. 30,1902 | 11.30 | 11.30 | 150,000 | 150,000 |
| 10 | Cheshire, Adams, North Adams, Williamstown. | Hoosac Valley Street Rwy. Co..... | Oct. 1,1901 | Sept. 30,1902 | 18.70 | 18.70 | 200,000 | 200,000 |
| 11 | Concord, Maynard, Hudson..... | Concord, Maynard and Hudson Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 13.07 | 13.42 | 175,000 | 175,000 |
| 12 | Conway, Deerfield..... | Conway Electric Street Rwy. Co ..... | Oct. 1,1901 | Sept. 30,1902 | 6.35 | 6.35 | 100,000 | 35,950 |
| 13 | Cottage City ..... | Cottage City and Edgartown Traction Co.. | June 17,1902 | Sept. 10,1902 | 5.47 | 5.47 | 60,000 | 60,000 |
| 14 | Dedham, Medfield..... | Norfolk Western Street Rwy. Co ..... | Oct. 1,1901 | Sept. 30,1902 | 9.45 | 9.45 | 100,000 | 100,000 |
| 15 | Deerfield, Greenfield ..... | Greenfield and Deerfield Street Rwy. Co... | Dec. 7,1901 | Sept. 30,1902 | 7.90 | 7.90 | 100,000 | 61,700 |
| 16 | Rehoboth, Swansea, Seekonk..... | Providence and Fall River Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 12.53 | 12.53 | 165,000 | 165,000 |
| 17 | Fall River, Westport, New Bedford, Dartmouth..... | Dartmouth and Westport Street Rwy. Co .. | Oct. 1,1901 | Sept. 30,1902 | 9.84 | 19.98 | 150,000 | 150,000 |
| 18 | Fitchburg, Leominster, Lunenburg. | Fitchburg and Leominster Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 31.68 | 31.68 | 500,000 | 350,000 |
| 19 | Framingham ..... | Framingham Union Street Rwy. Co..... | Oct. 1,1901 | Sept. 30,1902 | 6.84 | 6.98 | 60,000 | 30,000 |
| 20 | Gardner, Westminster, Fitchburg. | Gardner, Westminster and Fitchburg Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 16.05 | 16.05 | 185,000 | 185,000 |
| 21 | Greenfield, Montague ..... | Greenfield and Turners Falls Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 15.07 | 15.07 | 130,000 | 115,500 |
| 22 | Haverhill ..... | Haverhill and Southern New Hampshire Street Rwy. Co. | July 1,1902 | Sept. 30,1902 | 6.06 | 6.06 | 60,000 | 30,000 |
| 23 | Haverhill, Groveland, Georgetown. | Haverhill, Georgetown and Danvers Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 6.02 | 6.54 | 60,000 | 60,000 |
| 24 | Haverhill, Merrimac, Amesbury, Salisbury, Newburyport. | Haverhill and Amesbury Street Rwy. Co.. | Oct. 1,1901 | Sept. 30,1902 | 28.46 | 29.51 | 150,000 | 150,000 |
| 25 | Holyoke, Chicopee, Northampton, South Hadley. | Holyoke Street Rwy. Co..... | Oct. 1,1901 | Sept. 30,1902 | 42.70 | 43.70 | 700,000 | 700,000 |
| 25a | ..... | Mt. Tom R. R. Co. (lessor) ..... | Oct. 1,1901 | Sept. 30,1902 | 1.00 | ..... | 100,000 | 100,000 |
| 26 | Lawrence, Andover, North Reading, Reading. | Lawrence and Reading Street Rwy. Co .... | Oct. 1,1901 | Sept. 30,1902 | 11.98 | 12.90 | 222,000 | 222,000 |
| 27 | Lawrence, Methuen..... | Lawrence and Methuen Street Rwy. Co.... | Aug. 21,1902 | Sept. 30,1902 | 6.46 | 6.69 | 70,000 | 35,000 |
| 28 | Lawrence, Middleton, Danvers, Peabody, Salem. | Middleton and Danvers Street Rwy. Co.... | Oct. 1,1901 | Sept. 30,1902 | 13.80 | 24.28 | 32,000 | 32,000 |
| 29 | Mansfield, Foxboro, Wrentham, Walpole, Norwood. | Norfolk and Bristol Street Rwy. Co ..... | Nov. 15,1901[4] | Sept. 30,1902 | 21.05 | 21.05 | 200,000 | 200,000 |
| 30 | Marlboro, Hudson, Framingham. | Marlboro Street Rwy. Co ..... | Oct. 1,1901 | Sept. 30,1902 | 8.11 | 15.80 | 80,000 | 80,000 |
| 30a | ..... | Framingham, Southboro and Marlboro Street Rwy. Co. (lessor). | Oct. 1,1901 | Sept. 30,1902 | 7.69 | ..... | 80,000 | 80,000 |
| 31 | Marlboro, Westboro, North Grafton. | Marlboro and Westboro Street Rwy. Co .... | Oct. 1,1901 | Sept. 30,1902 | 13.86 | 13.86 | 160,000 | 160,000 |
| 32 | Medfield, Medway, Franklin..... | Medfield and Medway Street Rwy. Co..... | Oct. 1,1901 | Sept. 30,1902 | 11.25 | 11.25 | 100,000 | 100,000 |
| 33 | Middleboro, Rochester, Wareham. | Middleboro, Wareham and Buzzards Bay Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 22.22 | 29.74 | 150,000 | 150,000 |
| 34 | Milford, Franklin, Wrentham. | Milford, Attleboro and Woonsocket Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 30.52 | 30.71 | 315,000 | 315,000 |
| 35 | Milford, Uxbridge, South Framingham, Medway, Bellingham. | Milford and Uxbridge Street Rwy. Co. (including Milford, Holliston and Framingham Street Rwy. Co.). | Oct. 1,1901 | Sept. 30,1902 | 36.00 | 36.02 | 353,500 | 352,000 |
| 36 | Natick, Wellesley, Needham, Wayland, Framingham. | Natick and Cochituate Street Rwy. Co..... | Oct. 1,1901 | Sept. 30,1902 | 18.80 | 18.80 | 100,000 | 100,000 |
| 37 | Needham, Natick, Framingham. | South Middlesex Street Rwy. Co ..... | Oct. 1,1901 | Sept. 30,1902 | 13.85 | 19.67 | 100,000 | 100,000 |
| 37a | ..... | Natick and Needham Street Rwy. Co. (lessor). | Oct. 1,1901 | Sept. 30,1902 | 5.82 | ..... | 50,000 | 50,000 |
| 38 | New Bedford, Fairhaven, Dartmouth. | Union Street Rwy. Co..... | Oct. 1,1901 | Sept. 30,1902 | 30.44 | 30.64 | 600,000 | 600,000 |
| 39 | Mattapoisett, Marion, Wareham . | New Bedford and Onset Street Rwy. Co.... | Oct. 1,1901 | Sept. 30,1902 | 21.86 | 21.86 | 500,000 | 500,000 |
| 40 | Newburyport, Amesbury, Merrimac, Newbury. | Citizens Electric Street Rwy. Co ..... | Oct. 1,1901 | Sept. 30,1902 | 23.08 | 23.65 | 240,000 | 240,000 |
| 41 | Newburyport, Byfield, Ipswich, Georgetown. | Georgetown, Rowley and Ipswich Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 18.18 | 18.79 | 180,000 | 180,000 |
| 42 | Newton ..... | Commonwealth Avenue Street Rwy. Co ... | Oct. 1,1901 | Sept. 30,1902 | 13.37 | 13.92 | 292,000 | 292,000 |
| 43 | .....do ..... | Wellesley and Boston Street Rwy. Co ..... | Oct. 1,1901 | Sept. 30,1902 | 4.90 | 8.66 | 115,000 | 115,000 |
| 44 | Newton, Needham, Watertown .. | Newton and Boston Street Rwy. Co..... | Oct. 1,1901 | Sept. 30,1902 | 9.79 | 15.22 | 200,000 | 200,000 |
| 44a | ..... | Newtonville and Watertown Street Rwy. Co. (lessor). | Oct. 1,1901 | Sept. 30,1902 | [6]4.66 | ..... | 100,000 | 50,000 |
| 45 | Newton, Waltham, Watertown... | Newton Street Rwy. Co ..... | Oct. 1,1901 | Sept. 30,1902 | 15.76 | 19.36 | 315,000 | 315,000 |
| 46 | Northampton, Easthampton, Williamsburg. | Northampton Street Rwy. Co ..... | Oct. 1,1901 | Sept. 30,1902 | 26.26 | 26.26 | 300,000 | 300,000 |
| 47 | Northampton, Hatfield, Hadley, Amherst. | Northampton and Amherst Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 14.84 | 14.84 | 180,000 | 180,000 |
| 48 | North Andover..... | Haverhill and Andover Street Rwy. Co.... | July 1,1902 | Sept. 30,1902 | 1.80 | 1.80 | 80,000 | 80,000 |
| 49 | Norton, Attleboro, Mansfield, Easton, Taunton. | Norton and Taunton Street Rwy. Co..... | Oct. 1,1901 | Sept. 30,1902 | 29.83 | 30.24 | 297,000 | 297,000 |
| 50 | Orange, Athol..... | Athol and Orange Street Rwy. Co..... | Oct. 1,1901 | Sept. 30,1902 | 7.32 | 7.32 | 74,500 | 74,500 |
| 51 | Pittsfield, Lanesboro, Cheshire, Dalton. | Pittsfield Electric Street Rwy. Co ..... | Oct. 1,1901 | Sept. 30,1902 | 21.18 | 21.18 | 200,000 | 200,000 |
| 52 | Plymouth ..... | Plymouth and Sandwich Street Rwy. Co .. | Oct. 1,1901 | Sept. 30,1902 | 6.36 | 6.36 | 60,000 | 36,800 |
| 53 | Plymouth, Kingston, Pembroke, Whitman. | Brockton and Plymouth Street Rwy. Co ... | Oct. 1,1901 | Sept. 30,1902 | 23.80 | 23.80 | 295,000 | 295,000 |
| 54 | Sharon, Norwood ..... | Norwood, Canton and Sharon Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 6.15 | 6.15 | 125,000 | 62,500 |
| 55 | Shelburne, Coleraine..... | Shelburne Falls and Coleraine Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 7.01 | 7.01 | 50,000 | 50,000 |
| 56 | Southbridge, Sturbridge ..... | Southbridge and Sturbridge Street Rwy. Co. | Oct. 1,1901 | Sept. 30,1902 | 8.01 | 8.01 | 60,000 | 60,000 |

[1] This company has also a large floating debt.
[2] Primarily a steam road. Operates an electric road during summer season only.
[3] Capitalization included in that of steam road.
[4] Formerly the Norfolk and Southern; reorganized on this date. Report for earlier operations not available.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $153,000 | $153,000 | 6 | $9,180 | | | | | | | | $153,000 | $19,054 | 6b |
| 90,000 | 90,000 | | | | | | | $90,000 | $90,000 | 4½ | [1]180,000 | 18,672 | 7 |
| | | | | | | | | (2) | (2) | | | | 8 |
| 150,000 | 150,000 | | | | | | | | | | [1]150,000 | 13,274 | 9 |
| 200,000 | 200,000 | 6 | 12,000 | | | | | 100,000 | 100,000 | 5 | [1]300,000 | 16,043 | 10 |
| 175,000 | 175,000 | | | | | | | 165,000 | 165,000 | 5 | 340,000 | 26,014 | 11 |
| 100,000 | 35,950 | | | | | | | | | | [1]35,950 | 5,661 | 12 |
| 60,000 | 60,000 | | | | | | | | | | 60,000 | 10,969 | 13 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | 200,000 | 21,164 | 14 |
| 100,000 | 61,700 | | | | | | | | | | [1]61,700 | 7,810 | 15 |
| 165,000 | 165,000 | | | | | | | 165,000 | 165,000 | 5 | 330,000 | 26,337 | 16 |
| 150,000 | 150,000 | 8 | 12,000 | | | | | 90,000 | 90,000 | 5 | 240,000 | 24,390 | 17 |
| 500,000 | 350,000 | 6 | 21,000 | | | | | 300,000 | 300,000 | 4½, 5 | [1]650,000 | 20,518 | 18 |
| 60,000 | 30,000 | 5 | 1,500 | | | | | 47,000 | 47,000 | 5 | [1]77,000 | 11,257 | 19 |
| 185,000 | 185,000 | | | | | | | 150,000 | 150,000 | 5 | 335,000 | 20,872 | 20 |
| 130,000 | 115,500 | 4 | 4,620 | | | | | 100,000 | 88,000 | 5 | 203,500 | 13,504 | 21 |
| 60,000 | 30,000 | | | | | | | | | | [1]30,000 | 4,950 | 22 |
| 60,000 | 60,000 | | | | | | | 35,000 | 35,000 | 5 | 95,000 | 15,781 | 23 |
| 150,000 | 150,000 | | | | | | | 490,000 | 490,000 | 5, 6 | 640,000 | 22,488 | 24 |
| 700,000 | 700,000 | 8 | 56,000 | | | | | 335,000 | 335,000 | 5 | [1]1,035,000 | 24,239 | 25 |
| 100,000 | 100,000 | 6 | 6,000 | | | | | | | | 100,000 | 100,000 | 25a |
| 222,000 | 222,000 | | | | | | | | | | [1]222,000 | 18,531 | 26 |
| 70,000 | 35,000 | | | | | | | | | | [1]35,000 | 5,418 | 27 |
| 32,000 | 32,000 | | | | | | | | | | [1]32,000 | 2,319 | 28 |
| 200,000 | 200,000 | | | | | | | | | | [1]200,000 | 9,501 | 29 |
| 80,000 | 80,000 | | | | | | | 80,000 | 67,000 | 6 | [1]147,000 | 18,126 | 30 |
| 80,000 | 80,000 | | | | | | | 60,000 | 60,000 | 5 | 140,000 | 18,205 | 30a |
| 160,000 | 160,000 | | | | | | | 160,000 | 160,000 | 5 | 320,000 | 23,088 | 31 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | 200,000 | 17,778 | 32 |
| 150,000 | 150,000 | | | | | | | 150,000 | 150,000 | 5 | [1]300,000 | 13,501 | 33 |
| 315,000 | 315,000 | 4 | [5]10,000 | | | | | 250,000 | 250,000 | 5 | 565,000 | 18,512 | 34 |
| 353,500 | 352,000 | 6 | [5]15,120 | | | | | 215,000 | 215,000 | 5 | [1]567,000 | 15,750 | 35 |
| 100,000 | 100,000 | 8 | 8,000 | | | | | | | | [1]100,000 | 5,319 | 36 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | [1]200,000 | 14,440 | 37 |
| 50,000 | 50,000 | 4 | 2,000 | | | | | 50,000 | 50,000 | 5 | 100,000 | 17,182 | 37a |
| 600,000 | 600,000 | 8 | 48,000 | | | | | 400,000 | 400,000 | 5 | [1]1,000,000 | 32,852 | 38 |
| 500,000 | 500,000 | | | | | | | 280,000 | 280,000 | 5 | 780,000 | 35,682 | 39 |
| 240,000 | 240,000 | 7 | 16,800 | | | | | 210,000 | 210,000 | 5 | 450,000 | 19,497 | 40 |
| 180,000 | 180,000 | | | | | | | 180,000 | 180,000 | 5 | 360,000 | 19,802 | 41 |
| 292,000 | 292,000 | 4½ | 13,140 | | | | | 75,000 | 75,000 | 5 | 367,000 | 27,450 | 42 |
| 115,000 | 115,000 | 8 | 9,200 | | | | | | | | 115,000 | 23,469 | 43 |
| 200,000 | 200,000 | | | | | | | 200,000 | 200,000 | 5 | [1]400,000 | 40,858 | 44 |
| 100,000 | 50,000 | 7⅞ | 3,600 | | | | | | | | [1]50,000 | 10,730 | 44a |
| 315,000 | 315,000 | 6 | 18,900 | | | | | 250,000 | 250,000 | 5 | [1]565,000 | 35,850 | 45 |
| 300,000 | 300,000 | 8 | 24,000 | | | | | 225,000 | 225,000 | 4½, 5 | [1]525,000 | 19,992 | 46 |
| 180,000 | 180,000 | | | | | | | 160,000 | 160,000 | 5 | 340,000 | 22,911 | 47 |
| 80,000 | 80,000 | | | | | | | | | | [1]80,000 | 44,444 | 48 |
| 297,000 | 297,000 | | | | | | | 296,000 | 296,000 | 5 | 593,000 | 19,879 | 49 |
| 74,500 | 74,500 | 8 | 5,960 | | | | | 60,000 | 60,000 | 5 | 134,500 | 18,374 | 50 |
| 200,000 | 200,000 | 6 | [7]7,800 | | | | | 55,000 | 55,000 | 4½, 5 | 255,000 | 12,040 | 51 |
| 60,000 | 36,800 | | | | | | | | | | [1]36,800 | 5,786 | 52 |
| 295,000 | 295,000 | | | | | | | 270,000 | 270,000 | 4½, 5 | [1]565,000 | 23,739 | 53 |
| 125,000 | 62,500 | | | | | | | | | | [1]62,500 | 10,163 | 54 |
| 50,000 | 50,000 | | | | | | | 50,000 | 50,000 | 6 | 100,000 | 14,265 | 55 |
| 60,000 | 60,000 | | | | | | | 60,000 | 60,000 | 5 | 120,000 | 14,981 | 56 |

[5] Dividends not declared on full amount of stock shown.
[6] Part leased to Boston Elevated.
[7] Dividends declared on $130,000 only.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | MASSACHUSETTS—Continued. | | | | | | | |
| 57 | South Hadley, Granby | Hampshire Street Rwy. Co | July 12, 1902 | Sept. 30, 1902 | 4.57 | 4.57 | $100,000 | [1] $67,200 |
| 58 | Springfield, Chicopee, Longmeadow. | Springfield Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 92.03 | 92.03 | 1,958,400 | 1,958,400 |
| 59 | Palmer, Ware, South Monson | Springfield and Eastern Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 30.46 | 30.46 | 370,000 | 370,000 |
| 60 | Stoughton, Randolph | Stoughton and Randolph Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 7.76 | 8.25 | ..... | ..... |
| 61 | Taunton, Lakeville, Middleboro | East Taunton Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 10.70 | 11.42 | 110,000 | 110,000 |
| 62 | Taunton, Attleboro | Bristol County Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 16.67 | 17.36 | 200,000 | 200,000 |
| 63 | Templeton, Gardner, Athol, Phillipston. | Templeton Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 10.98 | 18.39 | 50,000 | 50,000 |
| 63a | ..... | Phillipston Street Rwy. Co. (lessor) | Oct. 1, 1901 | Sept. 30, 1902 | 7.41 | ..... | 18,600 | 18,600 |
| 64 | Tisbury | Marthas Vineyard Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 1.10 | 1.10 | 150,000 | [1] 6,742 |
| 65 | Upton | Upton Street Rwy. Co | Jan. 1, 1902 | June 23, 1902 | 2.66 | 2.66 | 20,000 | 20,000 |
| 66 | Wakefield | Reading, Wakefield and Lynnfield Street Rwy. Co. | Aug. 1, 1902 | Sept. 30, 1902 | 3.03 | 4.11 | 60,000 | 60,000 |
| 67 | Ware, West Brookfield, New Braintree, Hardwick. | Hampshire and Worcester Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 12.12 | 12.12 | 75,000 | 75,000 |
| 68 | Warren, Brookfield, Spencer | Warren, Brookfield and Spencer Street Rwy. Co. | Oct. 1, 1901 | Sept. 30, 1902 | 20.10 | 20.10 | 220,000 | 150,000 |
| 69 | Webster, Dudley | Webster and Dudley Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 6.09 | 6.09 | 50,000 | 50,000 |
| 70 | Westfield, West Springfield | Woronoco Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 12.25 | 12.25 | 250,000 | 200,000 |
| 71 | Whitinsville, Linwood | Linwood Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | .66 | 1.90 | 12,000 | 12,000 |
| 72 | Worcester and vicinity | Worcester Consolidated Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 126.39 | 132.47 | 4,345,000 | 3,500,000 |
| 72a | ..... | Worcester and Shrewsbury Street Rwy. Co. (lessor). | Oct. 1, 1901 | Sept. 30, 1902 | .46 | ..... | 20,000 | 20,000 |
| 72b | ..... | North End Street Rwy. Co. (lessor) | Oct. 1, 1901 | Sept. 30, 1902 | 5.13 | ..... | 110,000 | 110,000 |
| 73 | Worcester, Millbury, Sutton, Grafton. | Worcester and Blackstone Valley Street Rwy. Co. | Oct. 1, 1901 | Sept. 30, 1902 | 16.36 | 17.49 | 60,000 | 60,000 |
| 74 | Worcester, Oxford, Charlton, Southbridge. | Worcester and Southbridge Street Rwy. Co. | July 21, 1902 | Sept. 30, 1902 | 20.05 | 26.05 | 500,000 | 500,000 |
| 74a | ..... | Worcester, Rochdale and Charlton Depot Street Rwy. Co. (lessor). | July 21, 1902 | Sept. 30, 1902 | 1.62 | ..... | 40,000 | 40,000 |
| 75 | Worcester, Webster | Worcester and Webster Street Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 15.53 | 17.90 | 150,000 | 150,000 |
| | MICHIGAN. | | | | | | | |
| | Total for state | ..... | ..... | ..... | [5] 1,048.26 | [5] 1,083.11 | 30,120,000 | 29,033,100 |
| 1 | Adrian | Adrian Street Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 4.06 | 4.06 | 40,000 | 40,000 |
| 2 | Bay City, West Bay City | Bay Cities Consolidated Street Rwy. Co | Aug. 1, 1901 | July 31, 1902 | 23.30 | 23.30 | 1,000,000 | 950,000 |
| 3 | Benton Harbor, St. Joseph | Benton Harbor and St. Joseph Electric Railway and Light Co. | Sept. 1, 1901 | Aug. 31, 1902 | 10.50 | 10.50 | 145,000 | 145,000 |
| 4 | Detroit, Flint, Pontiac, Wyandotte, and vicinity. | Detroit United Rwy. Co | Jan. 1, 1902 | Dec. 31, 1902 | 381.30 | 381.30 | 12,500,000 | 12,500,000 |
| 5 | Detroit, Mt. Clemens, St. Clair, Port Huron. | Detroit and Port Huron Shore Line Rwy. Co. | July 1, 1901 | June 30, 1902 | 107.37 | 132.37 | 2,000,000 | 2,000,000 |
| 6 | Detroit, Ypsilanti, Ann Arbor, Jackson. | Detroit, Ypsilanti, Ann Arbor and Jackson Rwy. | Jan. 1, 1902 | Dec. 31, 1902 | 91.42 | 91.42 | 2,600,000 | 2,600,000 |
| 7 | Escanaba | Escanaba Electric Street Rwy. Co | Jan. 1, 1902 | Oct. 31, 1902 | 7.61 | 7.61 | 50,000 | 50,000 |
| 8 | Grand Rapids | Grand Rapids Rwy. Co | Jan. 1, 1902 | Dec. 31, 1902 | 55.86 | 55.86 | 4,000,000 | 3,500,000 |
| 9 | Grand Rapids, Grand Haven, Muskegon. | Grand Rapids, Grand Haven and Muskegon Rwy. Co. | Feb. 1, 1902 | Dec. 31, 1902 | 45.88 | 52.63 | 1,200,000 | 1,200,000 |
| 10 | Grand Rapids, Holland, Saugatuck | Grand Rapids, Holland and Lake Michigan Rapid Rwy. Co. | Jan. 1, 1902 | Dec. 31, 1902 | 69.00 | 69.00 | 1,000,000 | 1,000,000 |
| 11 | Houghton, Hancock, Red Jacket | Houghton County Street Rwy. Co | Jan. 1, 1902 | Nov. 30, 1902 | 22.16 | 22.16 | 1,250,000 | 950,000 |
| 12 | Ironwood; Hurley (Wis.) | Twin City General Electric Co | Jan. 1, 1902 | Dec. 31, 1902 | [9] 4.60 | [9] 4.60 | 400,000 | 400,000 |
| 13 | Ishpeming, Negaunee | Negaunee and Ishpeming Street Railway and Electric Co. | Mar. 31, 1901 | Mar. 30, 1902 | 4.69 | 4.69 | 125,000 | 125,000 |
| 14 | Jackson, Grass Lake | Jackson and Suburban Traction Co | Jan. 1, 1901 | Dec. 31, 1901 | 20.66 | 20.66 | 300,000 | 140,000 |
| 15 | Kalamazoo, Galesburg, Augusta, Battle Creek. | Michigan Traction Co | July 1, 1901 | June 30, 1902 | 43.80 | 43.80 | 500,000 | 500,000 |
| 16 | Lansing | Lansing City Electric Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 7.90 | 7.90 | 100,000 | 100,000 |
| 17 | Manistee | Manistee, Filer City and Eastlake Rwy. Co | Apr. 1, 1902 | Dec. 31, 1902 | 15.00 | 15.00 | 150,000 | 150,000 |
| 18 | Marquette | Marquette City and Presque Isle Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 7.00 | 7.00 | 200,000 | 123,100 |
| 19 | Menominee | Menominee Electric Light, Railway and Power Co. | May 1, 1901 | Apr. 30, 1902 | 6.71 | 6.71 | 110,000 | 110,000 |
| 20 | Monroe, Erie; Toledo (Ohio) | Toledo and Monroe Rwy. Co. (including Monroe Traction Co.). | Dec. 1, 1901 | Nov. 30, 1902 | [11] 21.92 | [11] 21.92 | [12] 450,000 | [12] 450,000 |
| 21 | Muskegon | Muskegon Traction and Lighting Co | Mar. 1, 1902 | Dec. 31, 1902 | 15.20 | 15.20 | 600,000 | 600,000 |
| 22 | Northville, Plymouth, Wayne | Detroit, Plymouth and Northville Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 17.00 | 17.00 | 150,000 | 150,000 |
| 23 | Owosso, Corunna | Owosso and Corunna Electric Co | Jan. 1, 1902 | Dec. 31, 1902 | 4.32 | 4.32 | 150,000 | 150,000 |
| 24 | Saginaw, Bay City, and vicinity | Saginaw Valley Traction Co | Feb. 1, 1901 | Jan. 31, 1902 | 35.55 | 38.65 | 1,100,000 | 1,100,000 |
| | MINNESOTA. | | | | | | | |
| | Total for state | ..... | ..... | ..... | [14] 316.27 | [14] 316.27 | 25,300,000 | 23,280,000 |
| 1 | Duluth | Interstate Traction Co | Sept. 1, 1901 | Aug. 31, 1902 | 3.14 | 3.14 | 50,000 | 20,000 |
| 2 | Duluth; Superior (Wis.) | Duluth-Superior Traction Co | Jan. 1, 1901 | Dec. 31, 1901 | [15] 70.70 | [15] 70.70 | 5,000,000 | 5,000,000 |
| 3 | Minneapolis, St. Paul, Stillwater | Twin City Rapid Transit Co | Jan. 1, 1901 | Dec. 31, 1901 | 251.02 | 251.02 | 20,000,000 | 18,010,000 |
| 4 | St. Cloud, Sauk Rapids | Benton Power and Traction Co | Jan. 1, 1902 | Dec. 31, 1902 | 8.66 | 8.66 | [12] 50,000 | [12] 50,000 |
| 5 | Winona | Winona Railway and Light Co | July 1, 1901 | June 30, 1902 | 4.65 | 4.65 | 200,000 | 200,000 |

[1] Not issued, but money paid in.
[2] This company has also a large floating debt.
[3] Bills payable and receiver's certificates.
[4] Dividends declared on $150,000 only.
[5] Exclusive of 4.74 miles lying outside of state, but including 30.19 miles in state owned by outside companies. Total owned by companies in state, 1,022.81 miles; total operated, 1,067.66 miles.
[6] Exclusive of $2,068,542, investments other than street railways and electric-light plants owned.
[7] Includes electric-light plant.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $100,000 | $67,200 | | | | | | | | | | $67,200 | $14,705 | 57 |
| 1,958,400 | 1,958,400 | 8 | $156,672 | | | | | $100,000 | $100,000 | 4 | [2] 2,058,400 | 22,367 | 58 |
| 370,000 | 370,000 | | | | | | | 330,000 | 330,000 | 5 | 700,000 | 22,981 | 59 |
| | | | | | | | | | [3] 217,442 | | 217,442 | 28,021 | 60 |
| 110,000 | 110,000 | 5 | 5,500 | | | | | 45,000 | 45,000 | 5 | 155,000 | 14,486 | 61 |
| 200,000 | 200,000 | 2 | 4,000 | | | | | 200,000 | 200,000 | 5 | [2] 400,000 | 23,995 | 62 |
| 50,000 | 50,000 | | | | | | | | | | [2] 50,000 | 4,554 | 63 |
| 18,600 | 18,600 | | | | | | | | | | [2] 18,600 | 2,510 | 63a |
| 150,000 | 6,742 | | | | | | | 150,000 | | | 6,742 | 6,129 | 64 |
| 20,000 | 20,000 | | | | | | | | | | [2] 20,000 | 7,519 | 65 |
| 60,000 | 60,000 | | | | | | | | | | [2] 60,000 | 19,802 | 66 |
| 75,000 | 75,000 | | | | | | | 60,000 | 60,000 | 5 | [2] 135,000 | 11,139 | 67 |
| 220,000 | 150,000 | | | | | | | 125,000 | 125,000 | 5 | [2] 275,000 | 13,682 | 68 |
| 50,000 | 50,000 | | | | | | | 30,000 | 30,000 | 5 | [2] 80,000 | 13,136 | 69 |
| 250,000 | 200,000 | 6 | [9] 9,000 | | | | | 75,000 | 75,000 | 5 | 275,000 | 22,449 | 70 |
| 12,000 | 12,000 | | | | | | | | | | 12,000 | 18,182 | 71 |
| 4,345,000 | 3,550,000 | 5 | 177,500 | | | | | 1,203,000 | 1,203,000 | 4½, 5, 6 | [2] 4,753,000 | 37,606 | 72 |
| 20,000 | 20,000 | 5 | 1,000 | | | | | | | | 20,000 | 43,478 | 72a |
| 110,000 | 110,000 | 3½ | 4,125 | | | | | 75,000 | 75,000 | 5 | 185,000 | 36,062 | 72b |
| 60,000 | 60,000 | | | | | | | | | | [2] 60,000 | 3,667 | 73 |
| 500,000 | 500,000 | | | | | | | | | | [2] 500,000 | 24,938 | 74 |
| 40,000 | 40,000 | | | | | | | | | | 40,000 | 24,691 | 74a |
| 150,000 | 150,000 | | | | | | | 150,000 | 150,000 | 5 | [2] 300,000 | 19,317 | 75 |
| 26,875,000 | 26,588,100 | ..... | 519,500 | $3,245,000 | $2,445,000 | ..... | $92,500 | 43,018,000 | 32,596,800 | ..... | 61,629,900 | [6] 58,233 | |
| 40,000 | 40,000 | | | | | | | 25,000 | 25,000 | 5 | 65,000 | 16,010 | 1 |
| 1,000,000 | 950,000 | | | | | | | 670,000 | 431,000 | 6 | 1,381,000 | 59,270 | 2 |
| 100,000 | 100,000 | | | 45,000 | 45,000 | | | 200,000 | 200,000 | 5 | [7] 345,000 | 32,857 | 3 |
| 12,500,000 | 12,500,000 | 4 | 500,000 | | | | | 25,000,000 | 17,380,000 | 4½ | [8] 29,880,000 | 78,363 | 4 |
| 1,900,000 | 1,900,000 | | | 100,000 | 100,000 | 5½ | 5,500 | 2,500,000 | 2,465,000 | 5, 6 | 4,465,000 | 41,585 | 5 |
| 2,600,000 | 2,600,000 | | | | | | | 2,600,000 | 2,600,000 | 5, 6 | 5,200,000 | 56,880 | 6 |
| 50,000 | 50,000 | | | | | | | | | | [8] 50,000 | 6,570 | 7 |
| 2,000,000 | 2,000,000 | | | 2,000,000 | 1,500,000 | 5 | 75,000 | 3,500,000 | 2,500,000 | 5 | 6,000,000 | 107,411 | 8 |
| 1,200,000 | 1,200,000 | | | | | | | 1,500,000 | 1,250,000 | 5 | 2,450,000 | 53,400 | 9 |
| 1,000,000 | 1,000,000 | | | | | | | 2,050,000 | 1,400,000 | 5 | 2,400,000 | 34,783 | 10 |
| 750,000 | 750,000 | | | 500,000 | 200,000 | 6 | 12,000 | 750,000 | 625,000 | 5 | 1,575,000 | 71,074 | 11 |
| 400,000 | 400,000 | | | | | | | 200,000 | 149,000 | 5 | [7] 549,000 | 119,348 | 12 |
| 125,000 | 125,000 | 4 | 5,000 | | | | | | | | [7] 125,000 | 26,652 | 13 |
| 300,000 | 140,000 | 6 | 9,000 | | | | | 400,000 | 300,000 | 5 | 440,000 | 21,297 | 14 |
| 500,000 | 500,000 | | | | | | | 800,000 | 800,000 | 5, 6 | 1,300,000 | 29,680 | 15 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | 200,000 | 25,316 | 16 |
| 150,000 | 150,000 | | | | | | | 270,000 | 270,000 | 5, 6 | 420,000 | 28,000 | 17 |
| 200,000 | 123,100 | | | | | | | 75,000 | 37,300 | 6, 7 | 160,400 | 22,914 | 18 |
| 110,000 | 110,000 | 5 | 5,500 | | | | | 58,000 | 24,500 | 5 | [10] 134,500 | 20,045 | 19 |
| 250,000 | 250,000 | | | 200,000 | 200,000 | | | [12] 600,000 | [12] 450,000 | 5 | 900,000 | 41,058 | 20 |
| 600,000 | 600,000 | | | | | | | 600,000 | 600,000 | 5 | [10] 1,200,000 | [13] 72,368 | 21 |
| 150,000 | 150,000 | | | | | | | 150,000 | 150,000 | 5 | 300,000 | 17,647 | 22 |
| 150,000 | 150,000 | | | | | | | 120,000 | 120,000 | 5 | [7] 270,000 | 62,500 | 23 |
| 700,000 | 700,000 | | | 400,000 | 400,000 | | | 850,000 | 720,000 | 5 | [7] 1,820,000 | 51,195 | 24 |
| 20,800,000 | 18,780,000 | ..... | 600,400 | 4,500,000 | 4,500,000 | ..... | 270,000 | 14,768,000 | 13,226,000 | ..... | [7] 36,506,000 | 107,952 | |
| 50,000 | 20,000 | | | | | | | 50,000 | 20,000 | 6 | 40,000 | 12,739 | 1 |
| 3,500,000 | 3,500,000 | | | 1,500,000 | 1,500,000 | 4 | 60,000 | 2,500,000 | 2,100,000 | 5 | 7,100,000 | 100,424 | 2 |
| 17,000,000 | 15,010,000 | 4 | 600,400 | 3,000,000 | 3,000,000 | 7 | 210,000 | 12,000,000 | 10,888,000 | 5, 6, 7 | 28,898,000 | 115,122 | 3 |
| 50,000 | 50,000 | | | | | | | [12] 18,000 | [12] 18,000 | 5 | 68,000 | 7,852 | 4 |
| 200,000 | 200,000 | | | | | | | 200,000 | 200,000 | 5 | [7] 400,000 | 86,022 | 5 |

[8] Includes investments other than street railways.
[9] Includes 2.24 miles in Wisconsin.
[10] Includes electric-light plant and other investments.
[11] Includes 2.50 miles in Ohio.
[12] Not reported; obtained from street-railway journals and directories.
[13] Exclusive of $100,000, investments other than street railways and electric-light plants owned.
[14] Exclusive of 21.90 miles lying outside of state. Total owned and operated by companies in state, 388.17 miles.
[15] Includes 21.90 miles in Wisconsin.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | MISSISSIPPI. | | | | | | | |
| | Total for state | | | | 25.80 | 25.30 | $1,075,000 | $626,500 |
| 1 | Greenville | Greenville Light and Car Co | Jan. 1,1902 | Dec. 31,1902 | 1.00 | 1.00 | 25,000 | 25,000 |
| 2 | Jackson | Jackson Electric Railway, Light and Power Co. | July 1,1901 | June 30,1902 | 5.34 | 5.34 | 250,000 | 250,000 |
| 3 | Meridian | Meridian Light and Rwy. Co | Mar. 1,1902 | Feb. 28,1903 | 5.71 | 5.71 | 400,000 | 176,500 |
| 4 | Natchez | Natchez Electric Street Railway and Power Co. | Jan. 29,1902 | June 30,1902 | 4.50 | 4.50 | 100,000 | 75,000 |
| 5 | Vicksburg | Vicksburg Railroad, Power and Manufacturing Co. | July 1,1901 | June 30,1902 | 8.75 | 8.75 | 300,000 | 100,000 |
| | MISSOURI. | | | | | | | |
| | Total for state | | | | [3]713.68 | [3]720.78 | 90,592,000 | 68,334,100 |
| 1 | Cape Girardeau | Citizens Street Rwy. Co | Oct. 1,1901 | Sept. 30,1902 | 1.75 | 1.75 | 20,000 | 20,000 |
| 2 | Carrollton | Carrollton Electric Rwy. Co | June 1,1901 | May 31,1902 | 1.88 | 1.88 | 10,000 | 10,000 |
| 3 | Clinton | Clinton Street Rwy. Co | July 1,1901 | June 30,1902 | 1.35 | 1.35 | 10,000 | 10,000 |
| 4 | Hannibal | Hannibal Railway and Electric Co | July 1,1901 | June 30,1902 | 4.25 | 4.25 | 100,000 | 100,000 |
| 5 | Joplin, Carthage, Webb City; Galena (Kans.). | Southwest Missouri Electric Rwy. Co | Sept. 1,1901 | Aug. 31,1902 | [5]36.61 | [5]36.61 | 800,000 | 800,000 |
| 6 | Kansas City, Independence; Kansas City, Argentine, Rosedale (Kans.). | Metropolitan Street Rwy. Co | June 1,1901 | May 31,1902 | [6]181.24 | [6]181.24 | 8,500,000 | 5,636,800 |
| 7 | Nevada | Missouri Water, Light and Traction Co | Oct. 1,1901 | Sept. 30,1902 | 4.12 | 4.12 | 100,000 | 100,000 |
| 8 | St. Joseph | St. Joseph Railway, Light, Heat and Power Co. | Jan. 1,1902 | Dec. 31,1902 | 35.15 | 35.15 | 6,000,000 | 6,000,000 |
| 9 | St. Louis and vicinity | St. Louis Transit Co | July 1,1901 | June 30,1902 | ..... | 360.89 | 25,000,000 | 17,264,300 |
| 9a | ....do | United Railways Co. of St. Louis (lessor). | July 1,1901 | June 30,1902 | 360.89 | ..... | 45,000,000 | 33,341,000 |
| 10 | ....do | St. Louis and Suburban Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 36.82 | 36.82 | 2,500,000 | 2,500,000 |
| 11 | St. Louis, Kirkwood, Webster Grove. | St. Louis and Meramec River R. R. Co | Jan. 1,1901 | Dec. 31,1901 | 28.19 | 35.29 | 1,000,000 | 1,000,000 |
| 12 | St. Louis, Kirkwood, Clayton | St. Louis and Kirkwood R. R. Co. (including Brentwood, Clayton and St. Louis R. R. Co.). | Jan. 1,1901 | Dec. 31,1901 | 24.97 | 24.97 | 282,000 | 282,000 |
| 13 | St. Louis, Wellston, Bridgeton, Pattonville. | St. Louis, St. Charles and Western R. R. Co | Jan. 1,1902 | Dec. 31,1902 | 16.00 | 16.00 | 600,000 | 600,000 |
| 14 | Sedalia | Railway and Electric Co. of Sedalia | June 1,1901 | May 31,1902 | 6.06 | 6.06 | 250,000 | 250,000 |
| 15 | Springfield | Kickapoo Transit Co | July 1,1901 | June 30,1902 | 2.80 | 2.80 | 20,000 | 20,000 |
| 16 | .....do | Springfield Traction Co | July 1,1901 | June 30,1902 | 16.30 | 16.30 | 400,000 | 400,000 |
| | MONTANA. | | | | | | | |
| | Total for state | | | | 63.21 | 63.21 | 2,095,613 | 2,045,613 |
| 1 | Anaconda | Anaconda Copper Mining Co. (railway department). | July 1,1901 | June 30,1902 | 6.75 | 6.75 | 175,613 | 175,613 |
| 2 | Bozeman | Bozeman Street Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 2.50 | 2.50 | 20,000 | 20,000 |
| 3 | Butte, Walkerville | Butte Electric Rwy. Co | July 1,1901 | June 30,1902 | 24.96 | 24.96 | 1,000,000 | 1,000,000 |
| 4 | Great Falls | Great Falls Street Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 11.90 | 11.90 | 200,000 | 150,000 |
| 5 | Helena, East Helena | Helena Power and Light Co | July 1,1901 | June 30,1902 | 17.10 | 17.10 | [9]700,000 | [9]700,000 |
| | NEBRASKA. | | | | | | | |
| | Total for state | | | | [10]119.56 | [10]119.56 | 6,135,000 | 6,012,125 |
| 1 | Lincoln, Havelock, Normal | Lincoln Traction Co | July 1,1901 | June 30,1902 | 37.00 | 37.00 | 1,065,000 | 979,425 |
| 2 | Nebraska City | Nebraska City Street Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 3.11 | 3.11 | 50,000 | 17,500 |
| 3 | Omaha, South Omaha | Omaha Street Rwy. Co | Dec. 1,1900 | Nov. 30,1901 | 72.00 | 72.00 | 5,000,000 | 5,000,000 |
| 4 | Omaha, Dundee | Metropolitan Cable Rwy. Co | Dec. 1,1901 | Sept. 30,1902 | 1.55 | 1.55 | 20,000 | 15,200 |
| | NEW HAMPSHIRE. | | | | | | | |
| | Total for state | | | | [11]174.45 | [11]174.45 | 2,403,200 | 2,333,200 |
| 1 | Concord | Concord Street Rwy. Co | July 1,1901 | June 30,1902 | 12.71 | 12.71 | 150,000 | 100,000 |
| 2 | Derry, Chester | Chester and Derry Railroad Association | July 1,1901 | June 30,1902 | 7.85 | 7.85 | 50,000 | 50,000 |
| 3 | Exeter, Hampton, Dover, Portsmouth, Plaistow; Haverhill, Amesbury (Mass.). | Exeter, Hampton and Amesbury Street Rwy. Co. | July 1,1901 | June 30,1902 | [12]21.61 | [12]77.83 | 275,000 | 275,000 |
| 3a | ..... | Amesbury and Hampton Street Rwy. Co. (lessor). | Oct. 1,1901 | Sept. 30,1902 | 8.75 | ..... | 100,000 | 100,000 |
| 3b | ..... | Dover, Somersworth and Rochester Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 18.20 | ..... | 300,000 | 300,000 |
| 3c | ..... | Haverhill and Plaistow Street Rwy. Co. (lessor). | July 1,1902 | Sept. 30,1902 | 2.76 | ..... | 30,000 | 30,000 |
| 3d | ..... | Haverhill, Plaistow and Newton Street Rwy. Co. (lessor). | May 8,1902 | June 30,1902 | 8.47 | ..... | 150,000 | 150,000 |
| 3e | ..... | Portsmouth and Exeter Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 12.24 | ..... | 150,000 | 150,000 |
| 3f | ..... | Seabrook and Hampton Beach Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 5.80 | ..... | 50,000 | 50,000 |
| 4 | Keene, Marlboro | Keene Electric Rwy. Co | July 1,1901 | June 30,1902 | 6.52 | 6.52 | 140,000 | 120,000 |
| 5 | Laconia | Laconia Street Rwy. Co | July 1,1901 | June 30,1902 | 8.87 | 8.87 | 100,000 | 100,000 |

[1] Includes electric-light plant and other investments.
[2] Includes electric-light plant.
[3] Exclusive of 45.55 miles lying outside of state, but including .85 mile in state owned by outside companies. Total owned by companies in state, 758.38 miles; total operated, 765.48 miles.
[4] Exclusive of $24,379,270, investments other than street railways and electric-light plants owned.
[5] Includes 2.31 miles in Kansas.
[6] Includes 43.24 miles in Kansas.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $1,075,000 | $626,500 | | | | | | | $700,000 | $644,000 | | [1] $1,270,500 | $50,217 | |
| 25,000 | 25,000 | | | | | | | 25,000 | 25,000 | 6 | [2] 50,000 | 50,000 | 1 |
| 250,000 | 250,000 | | | | | | | 250,000 | 250,000 | 5 | [1] 500,000 | 93,633 | 2 |
| 400,000 | 176,500 | | | | | | | 225,000 | 171,000 | 5 | [2] 347,500 | 60,858 | 3 |
| 100,000 | 75,000 | | | | | | | | | | 75,000 | 16,667 | 4 |
| 300,000 | 100,000 | | | | | | | 200,000 | 198,000 | 5 | [2] 298,000 | 34,057 | 5 |
| 68,692,000 | 50,354,400 | | $313,337 | $21,900,000 | $17,979,700 | | $769,287 | 77,840,000 | 71,474,816 | | 139,808,916 | [4] 152,206 | |
| 20,000 | 20,000 | | | | | | | | | | 20,000 | 11,429 | 1 |
| 10,000 | 10,000 | | | | | | | 30,000 | 30,000 | 6 | 40,000 | 21,277 | 2 |
| 10,000 | 10,000 | | | | | | | | | | 10,000 | 7,407 | 3 |
| 100,000 | 100,000 | | | | | | | 100,000 | 46,000 | 5 | 146,000 | 34,353 | 4 |
| 800,000 | 800,000 | 4 | 32,000 | | | | | 800,000 | 800,000 | 6 | 1,600,000 | 43,704 | 5 |
| 8,500,000 | 5,636,800 | 5 | 281,837 | | | | | 17,880,000 | 16,038,400 | 4,5,6 | [7] 21,675,200 | 119,594 | 6 |
| 100,000 | 100,000 | | | | | | | 100,000 | 75,000 | 6 | [2] 175,000 | 42,476 | 7 |
| 4,200,000 | 4,200,000 | | | 1,800,000 | 1,800,000 | | | 3,500,000 | 3,100,000 | 5 | [2] 9,100,000 | 258,890 | 8 |
| 25,000,000 | 17,264,300 | | | | | | | 6,000,000 | 5,326,000 | 5 | 22,590,300 | [8] 223,475 | 9 |
| 25,000,000 | 17,261,300 | | | 20,000,000 | 16,079,700 | 5 | 769,287 | 45,000,000 | 41,980,000 | 4,5,6 | 75,321,000 | | 9a |
| 2,500,000 | 2,500,000 | | | | | | | 2,500,000 | 2,300,000 | 5,6 | [7] 4,800,000 | 130,364 | 10 |
| 1,000,000 | 1,000,000 | | | | | | | 1,000,000 | 1,000,000 | 6 | 2,000,000 | 70,947 | 11 |
| 282,000 | 282,000 | | | | | | | | | | 282,000 | 11,294 | 12 |
| 600,000 | 600,000 | | | | | | | 600,000 | 449,416 | 5 | [7] 1,049,416 | 65,588 | 13 |
| 150,000 | 150,000 | | | 100,000 | 100,000 | | | | | | [2] 250,000 | 41,254 | 14 |
| 20,000 | 20,000 | | | | | | | | | | 20,000 | 7,143 | 15 |
| 400,000 | 400,000 | | | | | | | 330,000 | 330,000 | 5 | 730,000 | 44,785 | 16 |
| 2,095,613 | 2,045,613 | | | | | | | 1,275,000 | 1,275,000 | | 3,320,613 | 52,533 | |
| 175,613 | 175,613 | | | | | | | | | | 175,613 | 26,017 | 1 |
| 20,000 | 20,000 | | | | | | | | | | 20,000 | 8,000 | 2 |
| 1,000,000 | 1,000,000 | | | | | | | 700,000 | 700,000 | 5 | 1,700,000 | 68,109 | 3 |
| 200,000 | 150,000 | | | | | | | 150,000 | 150,000 | 7 | 300,000 | 25,210 | 4 |
| 700,000 | 700,000 | | | | | | | [9] 425,000 | [9] 425,000 | 5,6 | 1,125,000 | 65,789 | 5 |
| 5,435,000 | 5,312,225 | | 200,000 | 700,000 | 699,900 | | 30,800 | 2,750,000 | 2,395,000 | | 8,407,125 | 73,967 | |
| 365,000 | 279,525 | | | 700,000 | 699,900 | 5 | 30,800 | 250,000 | 45,000 | 5 | 1,024,425 | 27,687 | 1 |
| 50,000 | 17,500 | | | | | | | | | | 17,500 | 5,627 | 2 |
| 5,000,000 | 5,000,000 | 4 | 200,000 | | | | | 2,500,000 | 2,350,000 | 5 | 7,350,000 | 102,063 | 3 |
| 20,000 | 15,200 | | | | | | | | | | 15,200 | 9,806 | 4 |
| 2,353,200 | 2,288,200 | 3 | 8,250 | 50,000 | 50,000 | | | 1,596,000 | 1,556,000 | | 3,889,200 | 23,198 | |
| 100,000 | 50,000 | | | 50,000 | 50,000 | | | 150,000 | 116,000 | 5 | 216,000 | 16,994 | 1 |
| 50,000 | 50,000 | | | | | | | 50,000 | 50,000 | 5 | 100,000 | 12,739 | 2 |
| 275,000 | 275,000 | 3 | 8,250 | | | | | 225,000 | 225,000 | 5 | 500,000 | 23,137 | 3 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | 200,000 | 22,857 | 3a |
| 300,000 | 300,000 | | | | | | | 300,000 | 300,000 | 5 | 600,000 | 32,967 | 3b |
| 30,000 | 30,000 | | | | | | | 30,000 | 30,000 | 5 | 60,000 | 21,739 | 3c |
| 150,000 | 150,000 | | | | | | | 145,000 | 145,000 | 5 | 295,000 | 34,829 | 3d |
| 150,000 | 150,000 | | | | | | | 145,000 | 145,000 | 5 | 295,000 | 24,101 | 3e |
| 50,000 | 50,000 | | | | | | | 50,000 | 45,000 | 5 | 95,000 | 16,379 | 3f |
| 140,000 | 120,000 | | | | | | | 60,000 | 60,000 | 5 | 180,000 | 27,607 | 4 |
| 100,000 | 100,000 | | | | | | | 91,000 | 90,000 | 5 | 190,000 | 21,421 | 5 |

[7] Includes investments other than street railways.
[8] Exclusive of $17,261,300, stock of lessor company held by operating company, which has also other outside investments.
[9] Estimated apportionment of total, which covers electric-light plant also.
[10] Includes 5.90 miles in state owned by outside companies. Total owned and operated by companies in state, 113.66 miles.
[11] Exclusive of 11.47 miles lying outside of state, but including 18.27 miles in state owned by outside companies. Total owned and operated by companies in state, 167.65 miles.
[12] Includes 11.47 miles in Massachusetts.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | NEW HAMPSHIRE—Continued. | | | | | | | |
| 6 | Manchester, Goffstown, Goffs Falls, Massabesic, Nashua. | Manchester Street Rwy. Co | July 1, 1901 | June 30, 1902 | 34.59 | 34.59 | $520,500 | $520,500 |
| | Nashua | Nashua Street Rwy. Co. leased to Boston and Northern. (See Massachusetts.) | | | | | | |
| 7 | Portsmouth, Rye Beach, Northampton. | Portsmouth Electric Rwy. (owned and operated by Boston and Maine R. R.). | July 1, 1901 | June 30, 1902 | 19.28 | 19.28 | 387,700 | 387,700 |
| | Portsmouth | Portsmouth, Kittery and York Street Rwy. Co. (See Maine.) | | | | | | |
| | NEW JERSEY. | | | | | | | |
| | Total for state | | | | [1] 865.66 | [1] 872.96 | 69,645,250 | 68,173,440 |
| 1 | Atlantic City, Longport | West Jersey and Seashore R. R. Co | Jan. 1, 1901 | Dec. 31, 1901 | 19.03 | 19.03 | ([4]) | ([4]) |
| 2 | Bridgeton, Millville | Bridgeton and Millville Traction Co | July 1, 1901 | June 30, 1902 | 35.00 | 35.00 | 500,000 | 200,000 |
| 3 | Brigantine | Brigantine Transportation Co | Jan. 1, 1901 | Dec. 31, 1901 | 7.75 | 7.75 | 306,250 | 306,250 |
| 4 | Camden, Gloucester, Woodbury | Camden, Gloucester and Woodbury Rwy. Co. (owned by South Jersey Gas, Electric and Traction Co.). | Jan. 1, 1901 | Dec. 31, 1901 | 21.77 | 24.78 | 600,000 | 600,000 |
| 5 | Camden, Haddonfield, Moorestown. | Camden and Suburban Rwy. Co | Apr. 1, 1901 | Mar. 31, 1902 | 37.70 | 67.81 | 2,000,000 | 2,000,000 |
| 5a | | Camden Horse R. R. Co. (lessor) | Jan. 1, 1901 | Dec. 31, 1901 | 30.11 | | 250,000 | 250,000 |
| 6 | Cape May | Cape May, Delaware Bay and Sewells Point R. R. Co. | Jan. 1, 1902 | Dec. 31, 1902 | 12.43 | 12.43 | 150,000 | 150,000 |
| 7 | Elizabeth, Plainfield, Rahway | Elizabeth, Plainfield and Central Jersey Rwy. Co. | Jan. 1, 1901 | Dec. 31, 1901 | 60.00 | 61.50 | 3,000,000 | 3,000,000 |
| 8 | Hackensack, Englewood | New Jersey and Hudson River Railway and Ferry Co. | Jan. 1, 1901 | Dec. 31, 1901 | 15.60 | 15.60 | 1,750,000 | 1,450,000 |
| 9 | Jersey City, Hoboken, Paterson, Passaic and vicinity. | Jersey City, Hoboken and Paterson Street Rwy. Co. | Jan. 1, 1901 | Dec. 31, 1901 | 139.27 | 140.56 | 20,000,000 | 20,000,000 |
| 10 | Jersey City, Newark, Bayonne, Elizabeth, Orange, Montclair, Passaic and vicinity. | North Jersey Street Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 45.51 | 247.58 | 15,000,000 | 15,000,000 |
| 10a | | Consolidated Traction Co. (lessor) | Jan. 1, 1901 | Dec. 31, 1901 | 190.00 | | 15,000,000 | 15,000,000 |
| 10b | | Rapid Transit Street Rwy. Co. (lessor) | Jan. 1, 1901 | Dec. 31, 1901 | 12.07 | | 504,000 | 504,000 |
| 11 | Matawan, Keyport | Jersey Central Traction Co | Jan. 1, 1902 | June 30, 1902 | 3.12 | 3.12 | 100,000 | 50,000 |
| 12 | Long Branch, Eatontown, Red Bank. | Monmouth County Electric Co | Apr. 1, 1901 | Mar. 31, 1902 | 10.16 | 10.16 | 500,000 | 325,000 |
| 13 | Long Branch, Asbury Park, Belmar. | Atlantic Coast Electric R. R. Co | Oct. 1, 1901 | Sept. 30, 1902 | 17.95 | 23.68 | 1,500,000 | 1,500,000 |
| 13a | | Seashore Electric Rwy. Co. (lessor) | July 1, 1901 | June 30, 1902 | 5.73 | | 200,000 | 200,000 |
| 14 | Millville, Vineland | Millville Traction Co | Aug. 1, 1901 | July 31, 1902 | 13.34 | 13.34 | 400,000 | 175,000 |
| 15 | Mt. Holly | Mt. Holly Street Rwy. Co | Nov. 1, 1901 | Oct. 31, 1902 | 1.22 | 1.22 | 10,000 | 9,790 |
| 16 | New Brunswick, South Amboy, Somerville, Raritan. | Middlesex and Somerset Traction Co | Jan. 1, 1901 | Dec. 31, 1901 | 50.00 | 50.00 | 1,500,000 | 1,500,000 |
| 17 | Ocean City | Ocean City Electric R. R. Co | Apr. 1, 1901 | Mar. 31, 1902 | 7.50 | 7.50 | 100,000 | 100,000 |
| 18 | Orange and vicinity | Orange and Passaic Valley Rwy. Co | Oct. 1, 1901 | Sept. 30, 1902 | 9.89 | 9.89 | 1,000,000 | 1,000,000 |
| 19 | Orange, South Orange | South Orange and Maplewood Traction Co. | Jan. 1, 1901 | Dec. 31, 1901 | 5.40 | 5.40 | 200,000 | 200,000 |
| 20 | Perth Amboy, Metuchen | Raritan Traction Co | July 1, 1901 | June 30, 1902 | 9.06 | 9.06 | 1,000,000 | 740,000 |
| 21 | Point Pleasant Beach | Point Pleasant Traction, Electric Light and Power Co. | Jan. 1, 1902 | Dec. 31, 1902 | 2.28 | 2.28 | 275,000 | 250,000 |
| 22 | Rutherford, Carlstadt, Hasbrouck Heights. | Newark and Hackensack Traction Co | Jan. 1, 1901 | Dec. 31, 1901 | 14.87 | 14.87 | 700,000 | 700,000 |
| 23 | Trenton | Trenton Street Rwy. Co. (including Mercer County Traction Co.). | Jan. 1, 1902 | Dec. 31, 1902 | 43.60 | 43.60 | 1,000,000 | 1,000,000 |
| 24 | Trenton, Bordentown, Burlington | Camden and Trenton Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 29.50 | 31.00 | 1,750,000 | 1,750,000 |
| 25 | Trenton, Princeton | Trenton, Lawrenceville and Princeton R. R. Co. | July 1, 1901 | June 30, 1902 | 10.02 | 10.02 | 200,000 | 113,400 |
| 26 | West Orange | Orange Mountain Traction Co | Oct. 1, 1901 | Sept. 30, 1902 | 1.40 | 1.40 | 150,000 | 100,000 |
| | NEW MEXICO. | | | | | | | |
| | Total for territory | | | | 2.10 | 2.10 | [10] 25,000 | [10] 25,000 |
| 1 | Albuquerque | Albuquerque Street R. R. Co | Jan. 1, 1901 | Dec. 31, 1901 | 2.10 | 2.10 | [10] 25,000 | [10] 25,000 |
| | NEW YORK. | | | | | | | |
| | Total for state | | | | [11] 2,797.90 | [11] 2,889.10 | 300,451,805 | 276,205,672 |
| 1 | Albany, Rensselaer, Hudson | Albany and Hudson Railway and Power Co. | July 1, 1901 | June 30, 1902 | 42.44 | 44.50 | 2,250,000 | 2,250,000 |
| 2 | Albany, Troy, Rensselaer | United Traction Co | July 1, 1901 | June 30, 1902 | 66.76 | 78.33 | 5,000,000 | 4,999,950 |
| 2a | | Waterford and Cohoes R. R. Co. (lessor) | July 1, 1901 | June 30, 1902 | 2.21 | | 25,000 | 25,000 |
| 2b | | Troy and Cohoes R. R. Co. (lessor) | July 1, 1901 | June 30, 1902 | 5.71 | | 50,000 | 50,000 |
| 2c | | Lansingburg and Cohoes R. R. Co. (lessor) | July 1, 1901 | June 30, 1902 | 1.15 | | 15,000 | 15,000 |
| 3 | Albany, Troy, Cohoes, Glens Falls, Caldwell, Warrensburg. | Hudson Valley Rwy. Co | July 1, 1901 | June 30, 1902 | 110.73 | 134.10 | 3,000,000 | 2,722,400 |
| 4 | Albia, Averill Park | Troy and New England Rwy. Co | July 1, 1901 | June 30, 1902 | 10.00 | 10.00 | 350,000 | 180,000 |
| 5 | Amsterdam | Amsterdam Street R. R. Co | July 1, 1901 | June 30, 1902 | 5.73 | 5.73 | 1,000,000 | 1,000,000 |
| 6 | Auburn | Auburn City Rwy. Co | July 1, 1901 | June 30, 1902 | 12.01 | 12.51 | 300,000 | 300,000 |
| 7 | Auburn, Skaneateles | Auburn Interurban Electric R. R. Co | July 1, 1901 | June 30, 1902 | 7.11 | 7.11 | 250,000 | 250,000 |
| 8 | Ballston Spa, Middle Grove | Ballston Terminal R. R. Co | July 1, 1901 | June 30, 1902 | 15.00 | 15.00 | 1,500,000 | 300,000 |

[1] Includes 4.38 miles in state owned by outside companies. Total owned by companies in state, 861.28 miles; total operated, 868.58 miles.
[2] Capital reported for 29 companies only, representing 842.25 miles of track owned. (See note 4.)
[3] Exclusive of $880,908, investments other than street railways and electric-light plants owned.
[4] Capitalization included in that of steam railroad.
[5] Includes electric-light plant.
[6] Includes investments other than street railways.
[7] Exclusive of $100,000, investments other than street railways.
[8] Exclusive of $339,758, investments other than street railways.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $520,500 | $520,500 | | | | | | | $250,000 | $250,000 | 5 | $770,500 | $22,275 | 6 |
| 387,700 | 387,700 | | | | | | | | | | 387,700 | 20,109 | 7 |
| 68,220,250 | 67,178,440 | | $425,140 | $1,425,000 | $995,000 | | $22,500 | 75,072,750 | 57,490,750 | | [2] $125,664,190 | [2] $148,155 | |
| | | | | | | | | (4) | (4) | | | | 1 |
| 500,000 | 200,000 | 8 | 16,000 | | | | | 500,000 | 350,000 | 5 | 550,000 | 15,714 | 2 |
| 131,250 | 131,250 | | | 175,000 | 175,000 | | | 64,750 | 64,750 | 5 | [5] 371,000 | 47,871 | 3 |
| 600,000 | 600,000 | | | | | | | | | | 600,000 | 27,561 | 4 |
| 2,000,000 | 2,000,000 | | | | | | | 3,000,000 | 867,000 | 5 | [6] 2,867,000 | 76,048 | 5 |
| 250,000 | 250,000 | | | | | | | 500,000 | 500,000 | 5 | 750,000 | 24,909 | 5a |
| 150,000 | 150,000 | | | | | | | 150,000 | 150,000 | 6 | 300,000 | 24,135 | 6 |
| 3,000,000 | 3,000,000 | | | | | | | 2,500,000 | 1,500,000 | 5 | 4,500,000 | 75,000 | 7 |
| 1,000,000 | 1,000,000 | | | 750,000 | 450,000 | 5 | 22,500 | 1,500,000 | 1,100,000 | 5 | 2,550,000 | [7] 157,051 | 8 |
| 20,000,000 | 20,000,000 | | | | | | | 20,000,000 | 16,844,000 | 5, 6 | 36,844,000 | 264,551 | 9 |
| 15,000,000 | 15,000,000 | | | | | | | 15,000,000 | 6,500,000 | 4 | 21,500,000 | [8] 237,589 | 10 |
| 15,000,000 | 15,000,000 | 2 | 300,000 | | | | | 21,658,000 | 21,658,000 | 5, 6 | 36,658,000 | | 10a |
| 504,000 | 504,000 | 11½ | 59,220 | | | | | 500,000 | 500,000 | 5 | 1,004,000 | | 10b |
| 100,000 | 50,000 | | | | | | | 75,000 | 50,000 | 5 | 100,000 | 32,051 | 11 |
| 500,000 | 325,000 | | | | | | | 500,000 | 325,000 | 4 | 650,000 | 63,976 | 12 |
| 1,500,000 | 1,500,000 | | | | | | | 1,350,000 | 1,350,000 | 5 | 2,850,000 | [9] 144,847 | 13 |
| 200,000 | 200,000 | 5 | 10,000 | | | | | 200,000 | 200,000 | 6 | 400,000 | 69,808 | 13a |
| 400,000 | 175,000 | | | | | | | 400,000 | 196,000 | 5 | 371,000 | 27,811 | 14 |
| 10,000 | 9,790 | | | | | | | | | | 9,790 | 8,025 | 15 |
| 1,500,000 | 1,500,000 | | | | | | | 1,500,000 | 1,000,000 | 5 | [6] 2,500,000 | 50,000 | 16 |
| 100,000 | 100,000 | | | | | | | 75,000 | 75,000 | 5, 6 | 175,000 | 23,333 | 17 |
| 1,000,000 | 1,000,000 | | | | | | | 1,000,000 | 640,000 | 5 | 1,640,000 | 165,824 | 18 |
| 200,000 | 200,000 | | | | | | | | | | 200,000 | 37,037 | 19 |
| 500,000 | 370,000 | | | 500,000 | 370,000 | | | | | | 740,000 | 81,678 | 20 |
| 275,000 | 250,000 | | | | | | | 200,000 | 85,000 | 5 | [5] 335,000 | 146,930 | 21 |
| 700,000 | 700,000 | | | | | | | 500,000 | 500,000 | 5 | 1,200,000 | 80,699 | 22 |
| 1,000,000 | 1,000,000 | 4 | 39,920 | | | | | 2,000,000 | 2,000,000 | 5, 6 | 3,000,000 | 68,807 | 23 |
| 1,750,000 | 1,750,000 | | | | | | | 1,750,000 | 886,000 | 5 | 2,636,000 | 89,356 | 24 |
| 200,000 | 113,400 | | | | | | | 100,000 | 100,000 | 5 | 213,400 | 21,297 | 25 |
| 150,000 | 100,000 | | | | | | | 50,000 | 50,000 | 6 | 150,000 | 107,143 | 26 |
| 25,000 | 25,000 | | | | | | | | | | 25,000 | 11,905 | |
| 25,000 | 25,000 | | | | | | | | | | 25,000 | 11,905 | 1 |
| 294,396,805 | 270,374,935 | | 6,826,754 | 6,055,000 | 5,830,737 | | 54,110 | 408,114,173 | 252,929,373 | | 529,135,045 | [12] 177,532 | |
| 2,250,000 | 2,250,000 | | | | | | | 2,250,000 | 2,250,000 | 5 | [5] 4,500,000 | 106,032 | 1 |
| 5,000,000 | 4,999,950 | 5 | 249,991 | | | | | 5,350,800 | 4,241,300 | 4½, 5, 6 | 9,241,250 | [13] 135,721 | 2 |
| 25,000 | 25,000 | | | | | | | | | | 25,000 | 11,312 | 2a |
| 50,000 | 50,000 | 7 | 3,500 | | | | | | | | 50,000 | 8,757 | 2b |
| 15,000 | 15,000 | 7 | 1,050 | | | | | | | | 15,000 | 13,043 | 2c |
| 3,000,000 | 2,722,400 | | | | | | | 4,000,000 | 2,141,500 | 5, 6 | 4,863,900 | 43,926 | 3 |
| 350,000 | 180,000 | | | | | | | 191,000 | 183,800 | 5, 6 | 363,800 | 36,380 | 4 |
| 1,000,000 | 1,000,000 | | | | | | | 1,250,000 | 1,000,000 | 5 | [5] 2,000,000 | [14] 349,040 | 5 |
| 300,000 | 300,000 | | | | | | | 300,000 | 300,000 | 6 | 600,000 | 49,958 | 6 |
| 250,000 | 250,000 | | | | | | | 150,000 | 150,000 | 5 | [6] 400,000 | 56,259 | 7 |
| 1,500,000 | 300,000 | | | | | | | 1,450,000 | 385,000 | 5 | 685,000 | 45,667 | 8 |

[9] Exclusive of $250,000, investments other than street railways.
[10] Cash investment.
[11] Exclusive of 15.01 miles lying outside of state, but including 3 miles in state owned by outside companies. Total owned by companies in state, 2,809.91 miles, including 36.42 miles leased from steam railroads and bridge company (see note 2, page 256, and note 18, page 259); total operated, 2,901.11 miles.
[12] Exclusive of $36,751,267, investments other than street railways and electric-light plants owned.
[13] Exclusive of $180,488, investments other than street railways.
[14] Capitalization partly balanced by open accounts in connection with further construction.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | NEW YORK—Continued. | | | | | | | |
| 9 | Binghamton, Union, Lestershire. | Binghamton Rwy. Co | July 1,1901 | June 30,1902 | 36.76 | 36.76 | $1,150,000 | $731,860 |
| 10 | Buffalo, Niagara Falls, Lockport, North Tonawanda. | International Rwy. Co.[1] | July 1,1901 | June 30,1902 | [2]222.71 | [2]225.82 | 10,120,500 | 10,120,500 |
| 11 | Buffalo, West Seneca | Crosstown Street Rwy. Co.[4] | July 1,1901 | June 30,1902 | 97.77 | 97.77 | 3,000,000 | 2,860,000 |
| 12 | Buffalo, Depew | Buffalo and Depew Rwy. Co | July 1,1901 | June 30,1902 | 14.71 | 14.71 | 350,000 | 350,000 |
| 13 | Buffalo, Hamburg | Buffalo, Hamburg and Aurora Rwy. Co | Sept. 9,1902 | Mar. 8,1903 | 13.75 | 13.75 | ([5]) | ([5]) |
| 14 | Canandaigua | Ontario Light and Traction Co | July 1,1901 | June 30,1902 | 3.00 | 3.00 | 100,000 | 100,000 |
| 15 | Catskill | Catskill Electric Rwy. Co | July 1,1901 | June 30,1902 | 2.90 | 2.90 | 400,000 | 60,000 |
| 16 | Cohoes | Cohoes City Rwy. Co | July 1,1901 | June 30,1902 | 6.35 | 6.35 | 50,000 | 50,000 |
| 17 | Cortland, Homer, McGrawville | Cortland County Traction Co | July 1,1901 | June 30,1902 | 10.04 | 10.04 | 370,000 | 370,000 |
| 18 | Corning, Painted Post | Corning and Painted Post Street Rwy. Co | July 1,1901 | June 30,1902 | 5.90 | 5.90 | 100,000 | 100,000 |
| 19 | Dunkirk, Fredonia | Dunkirk and Fredonia R. R. Co | July 1,1901 | June 30,1902 | 3.75 | 3.75 | 150,000 | 136,410 |
| 20 | Dunkirk | Dunkirk and Point Gratiot Traction Co | July 1,1901 | June 30,1902 | 3.25 | 3.25 | 25,000 | 25,000 |
| 21 | Elmira, Elmira Heights, Horseheads. | Elmira Water, Light and R. R. Co | July 1,1901 | June 30,1902 | 14.17 | 27.24 | 224,000 | 224,000 |
| 21a | | West Water Street R. R. Co. (lessor) | July 1,1901 | June 30,1902 | 3.75 | ..... | 25,000 | 25,000 |
| 21b | | West Side R. R. Co. (lessor) | July 1,1901 | June 30,1902 | 9.32 | ..... | 300,000 | 105,000 |
| 22 | Far Rockaway | Ocean Electric Rwy. Co | July 1,1901 | June 30,1902 | 1.04 | 1.04 | 50,000 | 35,000 |
| 23 | Fishkill on the Hudson, Fishkill, Matteawan. | Citizens Street Rwy. Co | July 1,1901 | June 30,1902 | 2.95 | 7.00 | 75,000 | 75,000 |
| 23a | | Fishkill Electric Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 4.05 | ..... | 50,000 | 50,000 |
| 24 | Fonda, Johnstown, Gloversville | Fonda, Johnstown and Gloversville R. R. Co. | July 1,1901 | June 30,1902 | 19.01 | 19.01 | 400,000 | 390,210 |
| 25 | Fulton | Lake Ontario and Riverside R. R. Co | July 1,1901 | June 30,1902 | 1.04 | 1.04 | 15,000 | 15,000 |
| 26 | Geneva, Waterloo, Seneca Falls | Geneva, Waterloo, Seneca Falls and Cayuga Lake Traction Co. | July 1,1901 | June 30,1902 | 17.75 | 17.75 | 450,000 | 449,500 |
| 27 | Gloversville, Johnstown | Mountain Lake Electric R. R. Co | July 1,1901 | June 30,1902 | 4.50 | 4.50 | 60,000 | 60,000 |
| 28 | Hoosick Falls; Bennington (Vt.). | Bennington and Hoosick Valley Rwy. Co | July 1,1901 | June 30,1902 | [11]16.52 | [11]16.52 | 200,000 | 200,000 |
| 29 | Hornellsville | Hornellsville Electric Rwy. Co | July 1,1901 | June 30,1902 | 5.07 | 5.07 | 50,000 | 50,000 |
| 30 | Hornellsville, Canisteo | Hornellsville and Canisteo Rwy. Co | July 1,1901 | June 30,1902 | 4.33 | 5.33 | 50,000 | 50,000 |
| 31 | Huntington | Huntington R. R. Co | July 1,1901 | June 30,1902 | 3.19 | 3.19 | 30,000 | 30,000 |
| 32 | Ithaca | Ithaca Street Rwy. Co. (including Cayuga Lake Electric Rwy. Co.). | July 1,1901 | June 30,1902 | 7.68 | 7.68 | 325,000 | 325,000 |
| 33 | Jamestown | Jamestown Street Rwy. Co | July 1,1901 | June 30,1902 | 20.78 | 20.78 | 250,000 | 100,000 |
| 34 | Kingston | Kingston Consolidated R. R. Co | July 1,1901 | June 30,1902 | 9.16 | 9.16 | 400,000 | 400,000 |
| 35 | Lewiston, Youngstown | Lewiston and Youngstown Frontier Rwy. Co. | July 1,1901 | June 30,1902 | 8.70 | 8.70 | 150,000 | 134,000 |
| 36 | Lima, Honeoye Falls, Meridian | Lima-Honeoye Electric Light and R. R. Co. | July 1,1901 | June 30,1902 | 5.16 | 5.16 | 100,000 | 100,000 |
| 37 | Middletown, Goshen | Middletown-Goshen Electric Rwy. Co | July 1,1901 | June 30,1902 | 12.84 | 12.84 | 100,000 | 100,000 |
| 38 | Mineola, Hempstead, Freeport | New York and Long Island Traction Co | May 16,1902 | June 30,1902 | 9.00 | 9.00 | 125,000 | 125,000 |
| 39 | Newburg, Walden | Orange County Traction Co | July 1,1901 | June 30,1902 | 16.49 | 16.49 | 325,000 | 325,000 |
| 40 | Newpaltz, Highland | New Paltz and Poughkeepsie Traction Co | July 1,1901 | June 30,1902 | 9.27 | 9.27 | 100,000 | 100,000 |
| 41 | New York (Manhattan) | Interurban Street R. R. Co. (Metropolitan Street Rwy. Co.)[14] | July 1,1901 | June 30,1902 | 1.59 | 200.83 | 20,000,000 | 5,880,000 |
| 41a | .....do | Metropolitan Street Rwy. Co. (lessor) | Apr. 1,1902 | June 30,1902 | 47.92 | ..... | 52,000,000 | 51,996,500 |
| 41b | .....do | Bleecker Street and Fulton Ferry R. R. Co. (lessor). | July 1,1901 | June 30,1902 | 10.66 | ..... | 900,000 | 900,000 |
| 41c | .....do | Broadway and Seventh Avenue Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 15.12 | ..... | 2,100,000 | 2,100,000 |
| 41d | .....do | Central Park and North and East River Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 19.56 | ..... | 1,800,000 | 1,800,000 |
| 41e | .....do | Eighth Avenue R. R. Co. (lessor) | July 1,1901 | June 30,1902 | 18.75 | ..... | 1,000,000 | 1,000,000 |
| 41f | .....do | Forty-second Street and Grand Street Ferry Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 7.64 | ..... | 750,000 | 748,000 |
| 41g | .....do | New York and Harlem (city line) R. R. Co. (lessor). | July 1,1901 | June 30,1902 | 19.63 | ..... | 10,000,000 | 10,000,000 |
| 41h | .....do | Ninth Avenue R. R. Co. (lessor) | July 1,1901 | June 30,1902 | 15.77 | ..... | 800,000 | 800,000 |
| 41i | .....do | Second Avenue R. R. Co. (lessor) | July 1,1901 | June 30,1902 | 25.92 | ..... | 2,500,000 | 1,862,000 |
| 41k | .....do | Sixth Avenue R. R. Co. (lessor) | July 1,1901 | June 30,1902 | 12.03 | ..... | 2,000,000 | 2,000,000 |
| 41l | .....do | Twenty-third Street R. R. Co. (lessor) | July 1,1901 | June 30,1902 | 4.15 | ..... | 600,000 | 600,000 |
| 42 | .....do | Central Crosstown R. R. Co.[17] | July 1,1901 | June 30,1902 | 4.15 | 14.00 | 600,000 | 600,000 |
| 42a | .....do | Christopher and Tenth Street R. R. Co. (lessor). | July 1,1901 | June 30,1902 | 3.92 | ..... | 650,000 | 650,000 |
| 43 | .....do | Fulton Street R. R. Co.[17] | July 1,1901 | June 30,1902 | 1.05 | 1.89 | 500,000 | 500,000 |
| 44 | .....do | Thirty-fourth Street Crosstown Rwy. Co.[17] | July 1,1901 | June 30,1902 | .97 | 5.60 | 1,000,000 | 1,000,000 |
| 45 | .....do | Twenty-eighth and Twenty-ninth Street Crosstown R. R. Co.[17] | July 1,1901 | June 30,1902 | 6.73 | 7.61 | 1,500,000 | 1,500,000 |
| 46 | New York (Manhattan and Bronx). | Third Avenue R. R. Co.[19] | July 1,1901 | June 30,1902 | 27.24 | 27.42 | 16,000,000 | 15,995,800 |
| 47 | .....do | Forty-second Street, Manhattanville and St. Nicholas Avenue Rwy. Co.[21] | July 1,1901 | June 30,1902 | 25.66 | 30.79 | 2,500,000 | 2,500,000 |
| 48 | .....do | Dry Dock, East Broadway and Battery R. R. Co.[21] | July 1,1901 | June 30,1902 | 14.97 | 20.43 | 1,200,000 | 1,200,000 |
| 49 | .....do | Kingsbridge Rwy. Co.[21] | July 1,1901 | June 30,1902 | 6.25 | 6.25 | 1,000,000 | 8,600 |
| 50 | .....do | Southern Boulevard R. R. Co.[21] | July 1,1901 | June 30,1902 | 7.00 | 7.00 | 250,000 | 250,000 |
| 51 | New York, Yonkers | Yonkers R. R. Co.[21] | July 1,1901 | June 30,1902 | 28.77 | 31.27 | 1,000,000 | 1,000,000 |
| 52 | .....do | Union Rwy. Co.[23] | July 1,1901 | June 30,1902 | 71.10 | 71.10 | 2,000,000 | 2,000,000 |

[1] This is a combined report of 6 constituent companies separately for 7 months and the International Railway Company (consolidation) for 5 months The consolidated company is controlled by the International Traction Company of New Jersey.
[2] Includes 22.80 miles leased from steam railroads and bridge company.
[3] Exclusive of $361,577, investments other than street railways.
[4] Controlled by the International Traction Company of New Jersey.
[5] In hands of receiver.
[6] Includes electric-light plant.
[7] Exclusive of $89,775, investments other than street railways and electric-light plants owned.
[8] Stock dividend.
[9] Includes investments other than street railways.
[10] Dividends declared on $50,000 only.
[11] Includes 8.25 miles in Vermont.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $1,150,000 | $731,860 | 2 | $14,014 | | | | | $2,500,000 | $1,267,000 | 5, 6 | $1,998,860 | $54,376 | 9 |
| 10,120,500 | 10,120,500 | 4½ | 491,230 | | | | | 16,371,500 | 10,328,000 | 4, 5, 7 | 20,448,500 | [3]100,480 | 10 |
| 3,000,000 | 2,860,000 | | | | | | | 3,000,000 | 2,974,000 | 5 | 5,834,000 | 59,671 | 11 |
| 350,000 | 350,000 | | | | | | | 350,000 | 350,000 | 5 | 700,000 | 47,587 | 12 |
| | | | | | | | | 400,000 | 307,500 | 5 | 307,500 | 22,364 | 13 |
| 100,000 | 100,000 | | | | | | | 200,000 | 185,000 | 6 | [6]285,000 | 95,000 | 14 |
| 400,000 | 60,000 | | | | | | | 400,000 | 54,000 | 5 | 114,000 | 39,310 | 15 |
| 50,000 | 50,000 | | | | | | | 85,000 | 85,000 | 6 | 135,000 | 21,260 | 16 |
| 170,000 | 170,000 | | | $200,000 | $200,000 | | | 180,000 | 180,000 | 4 | [6]550,000 | [7]45,839 | 17 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | 200,000 | 33,898 | 18 |
| 150,000 | 136,410 | 10 | [8]12,310 | | | | | 61,000 | 61,000 | 5 | [9]197,410 | 52,643 | 19 |
| 25,000 | 25,000 | | | | | | | 55,000 | 55,000 | 5 | 80,000 | 24,615 | 20 |
| 224,000 | 224,000 | | | | | | | 660,000 | 660,000 | 5 | [6]884,000 | 62,385 | 21 |
| 25,000 | 25,000 | | | | | | | | | | 25,000 | 6,667 | 21a |
| 300,000 | 105,000 | | | | | | | 355,000 | 355,000 | 5 | 460,000 | 49,356 | 21b |
| 50,000 | 35,000 | | | | | | | 20,000 | 20,000 | 5 | 55,000 | 52,885 | 22 |
| 75,000 | 75,000 | | | | | | | 75,000 | 75,000 | 6 | 150,000 | 50,847 | 23 |
| 50,000 | 50,000 | | | | | | | 50,000 | 50,000 | 6 | 100,000 | 24,691 | 23a |
| 400,000 | 390,210 | 8 | [10]4,000 | | | | | 1,950,000 | 600,000 | 4½, 5, 6 | 990,210 | 52,089 | 24 |
| 15,000 | 15,000 | | | | | | | 15,000 | 15,000 | 6 | 30,000 | 28,846 | 25 |
| 350,000 | 350,000 | | | 100,000 | 99,500 | | | 500,000 | 434,000 | 4 | 883,500 | 49,775 | 26 |
| 60,000 | 60,000 | | | | | | | 100,000 | 65,200 | 5 | 125,200 | 27,822 | 27 |
| 170,000 | 170,000 | | | 30,000 | 30,000 | | | 250,000 | 182,000 | 5 | 382,000 | 23,123 | 28 |
| 50,000 | 50,000 | | | | | | | 70,000 | 70,000 | 4 | 120,000 | 23,669 | 29 |
| 50,000 | 50,000 | | | | | | | 80,000 | 80,000 | 4 | 130,000 | [12]25,404 | 30 |
| 30,000 | 30,000 | | | | | | | 30,000 | 26,000 | 5 | 56,000 | 17,555 | 31 |
| 325,000 | 325,000 | | | | | | | 325,000 | 325,000 | 6 | [6]650,000 | [13]74,870 | 32 |
| 250,000 | 100,000 | | | | | | | 300,000 | 300,000 | 6 | 400,000 | 19,249 | 33 |
| 400,000 | 400,000 | | | | | | | 700,000 | 700,000 | 5, 7 | 1,100,000 | 120,087 | 34 |
| 150,000 | 134,000 | | | | | | | 150,000 | 134,000 | 6 | 268,000 | 30,805 | 35 |
| 100,000 | 100,000 | | | | | | | 60,000 | 60,000 | 5 | [6]160,000 | 31,008 | 36 |
| 100,000 | 100,000 | | | | | | | 400,000 | 275,000 | 4 | 375,000 | 29,206 | 37 |
| 125,000 | 125,000 | | | | | | | | | | 125,000 | 13,889 | 38 |
| 150,000 | 150,000 | | | 175,000 | 175,000 | | | 425,000 | 425,000 | 5 | 750,000 | 45,482 | 39 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | 200,000 | 21,575 | 40 |
| 20,000,000 | 5,880,000 | | | | | | | | | | 5,880,000 | | 41 |
| 52,000,000 | 51,996,500 | 7 | [15]909,939 | | | | | 21,750,000 | 21,750,000 | | 73,746,500 | | 41a |
| 900,000 | 900,000 | 1½ | 13,500 | | | | | 700,000 | 700,000 | 4 | 1,600,000 | | 41b |
| 2,100,000 | 2,100,000 | 10 | 210,000 | | | | | 14,500,000 | 9,650,000 | 5 | 11,750,000 | | 41c |
| 1,800,000 | 1,800,000 | 9 | 162,000 | | | | | 1,200,000 | 1,200,000 | 7 | 3,000,000 | | 41d |
| 1,000,000 | 1,000,000 | 16 | 160,000 | | | | | 1,000,000 | 1,000,000 | 6 | 2,000,000 | [16]494,399 | 41e |
| 750,000 | 748,000 | 18 | 134,640 | | | | | 250,000 | 236,000 | 6 | 984,000 | | 41f |
| 10,000,000 | 10,000,000 | 4 | 400,000 | | | | | | | | 10,000,000 | | 41g |
| 800,000 | 800,000 | 8 | 64,000 | | | | | | | | 800,000 | | 41h |
| 2,500,000 | 1,862,000 | 9 | 167,580 | | | | | 8,900,000 | 6,410,000 | 5 | 8,272,000 | | 41i |
| 2,000,000 | 2,000,000 | 7 | 140,000 | | | | | | | | 2,000,000 | | 41k |
| 600,000 | 600,000 | 18 | 108,000 | | | | | 400,000 | 400,000 | 5, 6 | 1,000,000 | | 41l |
| 600,000 | 600,000 | 10 | 60,000 | | | | | 250,000 | 250,000 | 6 | [9]850,000 | 204,819 | 42 |
| 650,000 | 650,000 | 8 | 52,000 | | | | | 210,000 | 210,000 | 4 | 860,000 | [18]202,372 | 42a |
| 500,000 | 500,000 | | | | | | | 500,000 | 500,000 | 4 | 1,000,000 | 952,381 | 43 |
| 1,000,000 | 1,000,000 | | | | | | | 1,000,000 | 1,000,000 | 5 | 2,000,000 | 2,061,856 | 44 |
| 1,500,000 | 1,500,000 | | | | | | | 1,500,000 | 1,500,000 | 5 | 3,000,000 | 445,765 | 45 |
| 16,000,000 | 15,995,800 | | | | | | | 55,000,000 | 40,000,000 | 4, 5 | 55,995,800 | [20]1,671,825 | 46 |
| 2,500,000 | 2,500,000 | | | | | | | 2,800,000 | 2,700,000 | 4, 5 | [9]5,200,000 | [22]202,650 | 47 |
| 1,200,000 | 1,200,000 | | | | | | | 2,200,000 | 2,050,000 | 5 | 3,250,000 | [22]217,101 | 48 |
| 1,000,000 | 8,600 | | | | | | | | | | 8,600 | [22]1,376 | 49 |
| 250,000 | 250,000 | | | | | | | 250,000 | 250,000 | 5 | 500,000 | [22]71,429 | 50 |
| 1,000,000 | 1,000,000 | | | | | | | 1,000,000 | 1,000,000 | 5 | 2,000,000 | [22]69,517 | 51 |
| 2,000,000 | 2,000,000 | | | | | | | 2,000,000 | 2,000,000 | 5 | 4,000,000 | [22]56,259 | 52 |

[12] Exclusive of $20,000, investments other than street railways.
[13] Exclusive of $75,000, investments other than street railways and electric-light plants owned.
[14] Report covers the operations of the Metropolitan Street Railway Company for 9 months and the Interurban Street Railroad Company for 3 months. Capital stock is that of Interurban Street Railroad Company.
[15] For 12 months, including period before and after lease was effected.
[16] Exclusive of $22,775,712, investments other than street railways.
[17] Controlled by Metropolitan Street Railway Company.
[18] Exclusive of $66,700, investments other than street railways.
[19] This company is leased to Metropolitan Street Railway Company but is operated independently.
[20] Exclusive of $10,455,290, stocks of other companies. This company has advanced $11,383,476 for construction work on the 8 subsidiary companies, numbers 47 to 54 inclusive. The total capital liabilities of the 9 companies are $269,142 per mile of track owned.
[21] Stock owned by Third Avenue Railroad Company; leased with it to Metropolitan Street Railway Company but operated independently.
[22] See note 20.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | NEW YORK—Continued. | | | | | | | |
| 53 | New York, Mamaroneck, White Plains, Scarsdale. | Tarrytown, White Plains and Mamaroneck Rwy. Co.[1] | July 1,1901 | June 30,1902 | 18.69 | 18.69 | $300,000 | $300,000 |
| 54 | New York, Mt. Vernon, New Rochelle, Pelham. | Westchester Electric R. R. Co.[1] | July 1,1901 | June 30,1902 | 31.05 | 38.22 | 500,000 | 500,000 |
| 55 | New York (Manhattan and Bronx). | Manhattan Rwy. Co. (elevated) | July 1,1901 | June 30,1902 | 117.14 | 117.14 | 48,000,000 | 47,999,700 |
| 56 | New York (Bronx) | Pelham Park R. R. Co | July 1,1901 | June 30,1902 | 1.50 | 1.50 | 50,000 | 50,000 |
| 57 | .....do | City Island R. R. Co | July 1,1901 | June 30,1902 | 2.00 | 2.00 | 50,000 | 50,000 |
| 58 | New York (Brooklyn) | Brooklyn Rapid Transit Co.[4] | July 1,1901 | June 30,1902 | [5]319.42 | 526.71 | [6]47,717,305 | [6]47,717,305 |
| 58a | .....do | Brooklyn City R. R. Co. (lessor) | July 1,1901 | June 30,1902 | 204.92 | ..... | 12,000,000 | 12,000,000 |
| 59 | .....do | Coney Island and Brooklyn R. R. Co | July 1,1901 | June 30,1902 | 26.38 | 50.57 | 2,000,000 | 2,000,000 |
| 59a | .....do | Brooklyn City and Newtown R. R. Co. (lessor). | July 1,1901 | June 30,1902 | 21.92 | ..... | 2,000,000 | 1,923,400 |
| 60 | .....do | Van Brunt Street and Erie Basin R. R. Co | July 1,1901 | June 30,1902 | 2.50 | 3.00 | 200,000 | 200,000 |
| 61 | New York (Queens) | New York and Queens County Rwy. Co | July 1,1901 | June 30,1902 | 74.47 | 74.47 | 5,000,000 | 3,100,000 |
| 62 | .....do | New York and North Shore Rwy. Co | July 1,1901 | June 30,1902 | 24.00 | 24.80 | 600,000 | 600,000 |
| 63 | New York (Richmond) | Staten Island Midland R. R. Co | July 1,1901 | June 30,1902 | 27.54 | 27.64 | 1,000,000 | 1,000,000 |
| 64 | .....do | Staten Island Electric R. R. Co | July 1,1901 | June 30,1902 | 31.02 | 31.02 | 1,250,000 | 1,250,000 |
| 65 | Niagara Falls | Niagara Gorge R. R. Co | July 1,1901 | June 30,1902 | 14.40 | 15.40 | 1,000,000 | 1,000,000 |
| 66 | Northport, East Northport | Northport Traction Co | Apr. 1,1902 | June 30,1902 | 2.74 | 2.74 | 50,000 | 34,000 |
| 67 | Ogdensburg | Ogdensburg Street Rwy. Co | July 1,1901 | June 30,1902 | 10.00 | 10.00 | 150,000 | 150,000 |
| 68 | Olean; Bradford (Pa.) | Olean, Rock City and Bradford R. R. Co | July 1,1901 | June 30,1902 | [11]16.55 | [11]18.86 | 210,000 | 210,000 |
| 69 | Olean, Portville, Bolivar | Olean Street Rwy. Co | July 1,1901 | June 30,1902 | 13.25 | 13.25 | 300,000 | 300,000 |
| 70 | Oneida | Oneida Rwy. Co | July 1,1901 | June 30,1902 | 1.50 | 1.50 | 15,000 | 15,000 |
| 71 | Oneonta, Cooperstown | Oneonta, Cooperstown and Richfield Springs Rwy. Co. | July 1,1901 | June 30,1902 | 30.00 | 30.00 | 1,500,000 | 750,000 |
| 72 | Ossining | Westchester Traction Co | July 1,1901 | June 30,1902 | 2.66 | 2.66 | 300,000 | 300,000 |
| 73 | Oswego | Oswego Traction Co | July 1,1901 | June 30,1902 | 11.15 | 11.15 | 300,000 | 300,000 |
| 74 | Peekskill, Cortland, Yorktown | Peekskill Lighting and R. R. Co | July 1,1901 | June 30,1902 | 10.36 | 10.36 | 500,000 | 350,000 |
| 75 | Penn Yan, Milo, Jerusalem | Penn Yan, Keuka Park and Branchport Rwy. Co. | July 1,1901 | June 30,1902 | 9.25 | 9.25 | 100,000 | 94,000 |
| 76 | Plattsburg | Plattsburg Traction Co | July 1,1901 | June 30,1902 | 6.50 | 6.50 | 100,000 | 100,000 |
| 77 | Port Chester, Larchmont | New York and Stamford Rwy. Co | Aug. 1,1901 | June 30,1902 | 16.38 | 16.53 | 500,000 | 500,000 |
| 78 | Port Jervis | Port Jervis Electric Light, Power, Gas and R. R. Co. | July 1,1901 | June 30,1902 | 5.10 | 5.10 | 350,000 | 350,000 |
| 79 | Poughkeepsie, Wappingers Falls. | Poughkeepsie City and Wappingers Falls Electric Rwy. Co. | July 1,1901 | June 30,1902 | 17.33 | 17.33 | 750,000 | 750,000 |
| 80 | Rochester, Irondequoit | Rochester Rwy. Co | July 1,1901 | June 30,1902 | 86.93 | 104.92 | 5,000,000 | 5,000,000 |
| 80a | .....do | Rochester Electric Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 8.93 | ..... | 200,000 | 200,000 |
| 81 | .....do | Rochester and Suburban Rwy. Co | July 1,1901 | June 30,1902 | 16.30 | [15]11.13 | 420,000 | 420,000 |
| 82 | Rochester, Ontario, Sodus | Rochester and Sodus Bay Rwy. Co | July 1,1901 | June 30,1902 | 38.14 | 47.54 | 1,750,000 | 1,750,000 |
| 82a | ..... | Irondequoit Park R. R. Co. (lessor) | July 1,1901 | June 30,1902 | 5.60 | ..... | 100,000 | 100,000 |
| 83 | Charlotte | Rochester, Charlotte and Manitou R. R. Co. | July 1,1901 | June 30,1902 | 7.75 | 7.75 | 100,000 | 97,500 |
| 84 | Rome | Rome City Street Rwy. Co | July 1,1901 | June 30,1902 | 6.06 | 6.06 | 150,000 | 150,000 |
| 85 | Schenectady, Rotterdam, Albany. | Schenectady Rwy. Co | July 1,1901 | June 30,1902 | 36.12 | 42.78 | 600,000 | 600,000 |
| 86 | Sea Cliff | Sea Cliff Incline Cable Rwy. Co | July 1,1901 | June 30,1902 | .18 | .18 | 10,000 | 9,500 |
| 87 | South Beach, Midland Beach | Southfield Beach R. R. Co | Aug. 10,1901 | June 30,1902 | 4.00 | 4.00 | 250,000 | 250,000 |
| 88 | Syracuse, Onondaga, Geddes, De Witt. | Syracuse Rapid Transit Rwy. Co | July 1,1901 | June 30,1902 | 59.61 | 68.16 | 4,000,000 | 4,000,000 |
| 88a | .....do | East Side Traction Co. (lessor) | July 1,1901 | June 30,1902 | 8.55 | ..... | 300,000 | 300,000 |
| 89 | Syracuse, Fayetteville, Manlius | Syracuse and Suburban R. R. Co | July 1,1901 | June 30,1902 | 14.31 | 14.31 | 400,000 | 400,000 |
| 90 | Syracuse, Baldwinsville | Syracuse, Lakeside and Baldwinsville Rwy. Co. | July 1,1901 | June 30,1902 | 23.03 | 23.03 | 500,000 | 500,000 |
| 91 | Utica, Rome, Little Falls | Utica and Mohawk Valley Rwy. Co.[17] | July 1,1901 | June 30,1902 | [18]76.20 | [18]76.20 | 3,100,000 | 461,237 |
| 92 | Watertown, Brownville | Black River Traction Co | July 1,1901 | June 30,1902 | 10.47 | 10.47 | 105,000 | 105,000 |
| 93 | Watkins, Montour Falls, Horseheads. | Elmira and Seneca Lake Rwy. Co | July 1,1901 | June 30,1902 | 16.41 | 16.41 | 300,000 | 300,000 |
| 94 | West Seneca, Gardenville, Ebenezer. | Buffalo, Gardenville and Ebenezer Rwy. Co. | July 1,1901 | June 30,1902 | 4.67 | 4.67 | 40,000 | 39,300 |
| 95 | West Seneca, Hamburg | Hamburg Rwy. Co | July 1,1901 | June 30,1902 | 10.33 | 10.33 | 200,000 | 200,000 |
| 96 | Williamsville | Buffalo and Williamsville Electric Rwy. Co. | July 1,1901 | June 30,1902 | 4.54 | 4.54 | 75,000 | 75,000 |
| | NORTH CAROLINA. | | | | | | | |
| | Total for state | | | | [19]46.32 | 58.76 | 3,275,000 | 1,995,625 |
| 1 | Asheville | Asheville Electric Co | July 1,1901 | June 30,1902 | 5.87 | 5.87 | 750,000 | 511,700 |
| 2 | Asheville, Biltmore | Asheville Street R. R. Co | July 1,1901 | June 30,1902 | 7.64 | 8.08 | 500,000 | 266,325 |
| 3 | Asheville and vicinity | Asheville and Craggy Mountain Rwy. Co | July 1,1901 | June 30,1902 | 3.24 | 15.24 | 250,000 | 24,200 |
| 4 | Charlotte and vicinity | Charlotte Electric Railway, Light and Power Co. | Jan. 1,1902 | Dec. 31,1902 | 11.29 | 11.29 | 500,000 | 60,000 |
| 5 | Raleigh | Raleigh Electric Co | May 1,1901 | Apr. 30,1902 | [19]4.50 | 4.50 | 75,000 | 58,800 |
| 6 | Wilmington, Wrightsville | Consolidated Railways, Light and Power Co. | July 1,1901 | June 30,1902 | 4.65 | 4.65 | 500,000 | 400,000 |
| 7 | Winston-Salem | Fries Manufacturing and Power Co | Dec. 1,1901 | Nov. 30,1902 | 9.13 | 9.13 | 700,000 | 674,600 |

[1] Stock owned by Third Avenue Railroad Company; leased with it to Metropolitan Street Railway Company but operated independently.
[2] See note 20, page 55.
[3] Exclusive of $40,023, investments other than street railways.
[4] Includes the statistics for the following companies, which are controlled by ownership of stock: Brooklyn Heights; Nassau; Sea Beach; Brooklyn Union Elevated; Prospect Park and Coney Island; New York and Coney Island; New York and Brooklyn Bridge; Brooklyn, Queens County and Suburban; and Coney Island and Gravesend.
[5] Includes 67.02 miles of elevated track.
[6] Includes $2,717,305, outstanding shares of controlled companies.
[7] Exclusive of $1,000,000, investments other than street railways.
[8] Includes investments other than street railways.
[9] Exclusive of $260,000, investments other than street railways.
[10] Exclusive of $903,875, investments other than street railways.
[11] Includes 6.76 miles in Pennsylvania.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $300,000 | $300,000 | | | | | | | $300,000 | $300,000 | 5 | $600,000 | [2]$32,103 | 53 |
| 500,000 | 500,000 | | | | | | | 500,000 | 500,000 | 5 | 1,000,000 | [2]32,206 | 54 |
| 48,000,000 | 47,999,700 | 4 | $1,920,000 | | | | | 51,818,000 | 39,545,000 | 4, 5, 6 | 87,544,700 | 747,351 | 55 |
| 50,000 | 50,000 | | | | | | | 50,000 | 50,000 | 6 | 100,000 | [3]39,985 | 56 |
| 50,000 | 50,000 | | | | | | | 27,873 | 27,873 | 6 | 77,873 | 38,936 | 57 |
| 47,717,305 | 47,717,305 | | | | | | | 150,000,000 | 52,524,000 | [4], 5 | 100,241,305 | 313,823 | 58 |
| 12,000,000 | 12,000,000 | 10 | 1,200,000 | | | | | 6,925,000 | 6,925,000 | 4½, 5, 6 | 18,925,000 | 92,353 | 58a |
| 2,000,000 | 2,000,000 | 16 | 320,000 | | | | | 2,000,000 | 2,000,000 | 4, 5 | 4,000,000 | [7]113,723 | 59 |
| 2,000,000 | 1,923,400 | | | | | | | 2,000,000 | 2,000,000 | 5 | [8]3,923,400 | 178,987 | 59a |
| 200,000 | 200,000 | 4 | 8,000 | | | | | 75,000 | 65,000 | 5 | 265,000 | 106,000 | 60 |
| 5,000,000 | 3,100,000 | | | | | | | 4,200,000 | 3,000,000 | 4, 5, 6 | 6,100,000 | 81,912 | 61 |
| 600,000 | 600,000 | | | | | | | 600,000 | 600,000 | 5 | 1,200,000 | 50,000 | 62 |
| 1,000,000 | 1,000,000 | | | | | | | 1,000,000 | 1,000,000 | 5 | 2,000,000 | 72,622 | 63 |
| 1,250,000 | 1,250,000 | | | | | | | 2,000,000 | 2,000,000 | 5 | 3,250,000 | [9]96,389 | 64 |
| 1,000,000 | 1,000,000 | | | | | | | 1,000,000 | 1,000,000 | 5 | 2,000,000 | [10]76,120 | 65 |
| 50,000 | 34,000 | | | | | | | | | | 34,000 | 12,409 | 66 |
| 150,000 | 150,000 | | | | | | | 150,000 | 150,000 | 6 | 300,000 | 30,000 | 67 |
| 210,000 | 210,000 | | | | | | | 200,000 | 200,000 | 5 | 410,000 | 24,773 | 68 |
| 300,000 | 300,000 | | | | | | | 285,000 | 278,500 | 5 | 578,500 | 43,660 | 69 |
| 15,000 | 15,000 | | | | | | | 10,000 | 10,000 | 4 | 25,000 | 16,667 | 70 |
| 1,500,000 | 750,000 | | | | | | | 1,500,000 | 750,000 | 5 | 1,500,000 | 50,000 | 71 |
| 300,000 | 300,000 | | | | | | | 150,000 | 138,000 | 5 | 438,000 | 164,662 | 72 |
| 200,000 | 200,000 | | | $100,000 | $100,000 | | | 300,000 | 288,000 | 3, 5 | 588,000 | 52,735 | 73 |
| 500,000 | 350,000 | | | | | | | 750,000 | 500,000 | 5 | [12]850,000 | 82,046 | 74 |
| 100,000 | 94,000 | | | | | | | 100,000 | 100,000 | 5 | 194,000 | 20,973 | 75 |
| 100,000 | 100,000 | | | | | | | 100,000 | 80,000 | 6 | 180,000 | 27,692 | 76 |
| 500,000 | 500,000 | | | | | | | 500,000 | 365,000 | 5 | 865,000 | 52,808 | 77 |
| 350,000 | 350,000 | | | | | | | 450,000 | 200,000 | 5 | [13]550,000 | 107,843 | 78 |
| 750,000 | 750,000 | | | | | | | 500,000 | 404,000 | 5 | 1,154,000 | 66,590 | 79 |
| 2,500,000 | 2,500,000 | | | 2,500,000 | 2,500,000 | 2½ | $54,110 | 5,457,000 | 4,555,950 | 5, 6 | 9,555,950 | [14]108,075 | 80 |
| 200,000 | 200,000 | 8 | 16,000 | | | | | | | | [6]200,000 | 22,396 | 80a |
| 70,000 | 70,000 | | | 350,000 | 350,000 | | | 450,000 | | | 420,000 | 25,767 | 81 |
| 1,000,000 | 1,000,000 | | | 750,000 | 750,000 | | | | | | 1,750,000 | [16]44,048 | 82 |
| 100,000 | 100,000 | 5 | 5,000 | | | | | | | | 100,000 | 17,857 | 82a |
| 100,000 | 97,500 | | | | | | | 82,000 | 81,250 | 5 | 178,750 | 23,065 | 83 |
| 150,000 | 150,000 | | | | | | | 200,000 | 123,500 | 5 | 273,500 | 45,132 | 84 |
| 600,000 | 600,000 | | | | | | | 2,000,000 | 1,050,000 | 4½ | [12]1,650,000 | 45,681 | 85 |
| 10,000 | 9,500 | | | | | | | 2,000 | 2,000 | 4 | 11,500 | 63,889 | 86 |
| 250,000 | 250,000 | | | | | | | 150,000 | 21,000 | 5 | 271,000 | 67,750 | 87 |
| 2,750,000 | 2,750,000 | | | 1,250,000 | 1,250,000 | | | 4,750,000 | 3,836,000 | 5 | [8]7,836,000 | 131,454 | 88 |
| 300,000 | 300,000 | | | | | | | 250,000 | 250,000 | 5 | 550,000 | 64,327 | 88a |
| 400,000 | 400,000 | | | | | | | 433,000 | 427,000 | 5, 6 | 827,000 | 57,792 | 89 |
| 500,000 | 500,000 | | | | | | | 650,000 | 500,000 | 5 | [6]1,000,000 | 43,422 | 90 |
| 2,500,000 | 85,000 | | | 600,000 | 376,237 | | | 4,850,000 | 2,150,000 | 4½, 5 | 2,611,237 | 41,726 | 91 |
| 105,000 | 105,000 | | | | | | | 55,000 | 55,000 | 5 | 160,000 | 15,282 | 92 |
| 300,000 | 300,000 | | | | | | | 300,000 | 300,000 | 5 | 600,000 | 36,563 | 93 |
| 40,000 | 39,300 | | | | | | | 25,000 | 22,000 | 6 | 61,300 | 13,126 | 94 |
| 200,000 | 200,000 | | | | | | | 300,000 | 200,000 | 5 | 400,000 | 38,722 | 95 |
| 75,000 | 75,000 | | | | | | | | | | 75,000 | 16,520 | 96 |
| 2,825,000 | 1,657,660 | | | 450,000 | 337,965 | | | 2,825,000 | 1,880,500 | | 3,876,125 | [20]70,250 | |
| 750,000 | 511,700 | | | | | | | 750,000 | 496,000 | 5 | [13]1,007,700 | 171,670 | 1 |
| 300,000 | 78,360 | | | 200,000 | 187,965 | | | 100,000 | 100,000 | 6 | 366,325 | 47,948 | 2 |
| 250,000 | 24,200 | | | | | | | 500,000 | 26,000 | 6 | [6]50,200 | 15,494 | 3 |
| 500,000 | 60,000 | | | | | | | 500,000 | 350,000 | 5 | [12]410,000 | 36,315 | 4 |
| 75,000 | 58,800 | | | | | | | 75,000 | 58,500 | 5 | [13]117,300 | 27,600 | 5 |
| 350,000 | 350,000 | | | 150,000 | 50,000 | | | 400,000 | 400,000 | 5 | [12]800,000 | 172,043 | 6 |
| 600,000 | 574,600 | | | 100,000 | 100,000 | | | 500,000 | 450,000 | 5 | [12]1,124,600 | [21]118,690 | 7 |

[12] Includes electric-light plant and other investments.
[13] Includes electric-light plant.
[14] Exclusive of $161,000, investments other than street railways.
[15] Exclusive of 9.06 miles leased to an operating company.
[16] Exclusive of $70,000, investments other than street railways.
[17] This is a combined report of 6 constituent companies separately for 5 months and the Utica and Mohawk Valley Railway Company (consolidation) for 7 months.
[18] Includes 13.62 miles leased from steam railroad.
[19] Includes .25 mile leased from city.
[20] Exclusive of $639,690, investments other than street railways and electric-light plants owned.
[21] Exclusive of $40,957, investments other than street railways and electric-light plants owned.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | OHIO. | | | | | | | |
| | Total for state | | | | [1]2,338.50 | [1]2,454.83 | $120,507,200 | $108,893,650 |
| 1 | Ashtabula | Ashtabula Rapid Transit Co | Jan. 1,1902 | Dec. 31,1902 | 5.75 | 5.75 | 150,000 | 150,000 |
| 2 | Ashtabula, Conneaut, Jefferson | Pennsylvania and Ohio Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 27.75 | 27.75 | 700,000 | 680,000 |
| 3 | Bucyrus, Galion, Crestline, Mansfield. | Ohio Central Traction Co | July 1,1901 | June 30,1902 | 17.02 | 17.02 | 225,000 | 225,000 |
| 4 | Cambridge | Consolidated Co | July 1,1901 | June 30,1902 | 2.00 | 2.00 | 500,000 | 300,000 |
| 5 | Canton, Alliance, Sebring | Stark Electric R. R. Co.[4] | Jan. 1,1902 | Dec. 31,1902 | 26.97 | 26.97 | 1,000,000 | 850,000 |
| 6 | Canton, Massillon, Akron | Canton-Akron Rwy. Co | June 1,1902 | Dec. 31,1902 | 50.17 | 50.17 | 1,600,000 | 1,600,000 |
| 7 | Chillicothe | Chillicothe Electric Railroad, Light and Power Co. | July 1,1901 | June 30,1902 | 5.11 | 5.11 | 100,000 | 100,000 |
| 8 | Cincinnati and vicinity | Cincinnati Traction Co | Jan. 1,1902 | Dec. 31,1902 | ..... | 212.96 | 2,000,000 | 2,000,000 |
| 8a | ..... | Cincinnati Street Rwy Co. (lessor) | Jan. 1,1902 | Dec. 31,1902 | 212.96 | ..... | 20,000,000 | 18,011,450 |
| 9 | Cincinnati | Price Hill Incline Plane R. R. Co | Nov. 1,1901 | Oct. 31,1902 | .61 | .61 | 75,000 | 75,000 |
| 10 | Cincinnati, Glendale | Mill Creek Valley Street R. R. Co | July 1,1901 | June 30,1902 | 82.50 | 86.50 | 2,200,000 | 1,800,000 |
| 11 | Cincinnati, Hamilton, Dayton | Cincinnati, Dayton and Toledo Traction Co. | June 1,1901 | May 31,1902 | 78.35 | 78.85 | 5,000,000 | 3,000,000 |
| 12 | Cincinnati; Lawrenceburg (Ind.). | Cincinnati, Lawrenceburg and Aurora Electric Street R. R. Co. | Jan. 1,1901 | Dec. 31,1901 | [2]39.25 | [2]39.25 | 750,000 | 750,000 |
| 13 | Cleveland and vicinity | Cleveland Electric Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 137.34 | 143.32 | 13,000,000 | 13,000,000 |
| 14 | .....do | Cleveland City Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | [3]99.70 | 94.58 | 8,000,000 | 7,600,000 |
| 15 | Cleveland, Berea, Elyria, Oberlin, Lorain, Wellington. | Cleveland, Elyria and Western Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 68.00 | 76.50 | 2,000,000 | 1,500,000 |
| 16 | Cleveland, Chagrin Falls, Chardon, Garrettsville. | Eastern Ohio Traction Co | Jan. 1,1901 | Dec. 31,1901 | 90.00 | 101.00 | 2,500,000 | 2,500,000 |
| 17 | Cleveland, Painesville, Fairport | Cleveland, Painesville and Eastern R.R. Co. | Jan. 1,1902 | Dec. 31,1902 | 43.26 | 43.26 | 2,000,000 | 1,556,000 |
| 18 | Cleveland, Kent, Ravenna, Akron, Barberton. | Northern Ohio Traction Co | Jan. 1,1901 | Dec. 31,1901 | 96.85 | 110.25 | 3,500,000 | 3,500,000 |
| 19 | Columbus and vicinity | Columbus Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 106.43 | 106.43 | 7,000,000 | 6,000,000 |
| 20 | Columbus, London, Springfield | Columbus, London and Springfield Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 58.60 | 72.60 | 1,500,000 | 1,500,000 |
| 20a | ..... | Columbus, Grove City and Southwestern Rwy. Co. (lessor). | Jan. 1,1902 | Dec. 31,1902 | 14.00 | ..... | 250,000 | 250,000 |
| 21 | Columbus, Newark | Columbus, Buckeye Lake and Newark Traction Co. | Mar. 1,1902 | Nov. 30,1902 | 43.50 | 45.06 | 1,500,000 | 1,500,000 |
| 22 | Dayton | City Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 24.28 | 26.55 | 2,100,000 | 2,090,600 |
| 23 | .....do | Peoples Rwy. Co | July 1,1901 | June 30,1902 | 20.70 | 22.70 | 1,100,000 | 1,100,000 |
| 24 | .....do | Oakwood Street Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 7.90 | 7.90 | 19,000 | 19,000 |
| 25 | Dayton, Alexandria, Eaton | Dayton and Western Traction Co | Jan. 1,1901 | Dec. 31,1901 | 22.25 | 28.25 | 800,000 | 800,000 |
| 26 | Dayton, Arcanum, Greenville | Dayton and Northern Traction Co | Oct. 1,1901 | Sept. 30,1902 | 40.05 | 44.91 | 450,000 | 450,000 |
| 27 | Dayton, Springfield, Urbana | Dayton, Springfield and Urbana Electric Rwy. Co.[10] | July 1,1901 | June 30,1902 | 48.63 | 55.60 | 1,500,000 | 759,500 |
| 27a | ..... | Springfield and Western Traction Co. (lessor). | July 1,1901 | June 30,1902 | 5.44 | ..... | 250,000 | 250,000 |
| 28 | Dayton, Troy, Piqua | Dayton and Troy Electric Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 28.00 | 46.70 | 1,000,000 | 1,000,000 |
| 28a | ..... | Miami Valley Rwy. Co. (lessor) | Jan. 1,1902 | Dec. 31,1902 | 14.70 | ..... | 300,000 | 300,000 |
| 29 | Dayton, Xenia | Dayton and Xenia Transit Co | July 1,1901 | June 30,1902 | 50.12 | 53.01 | 800,000 | 800,000 |
| 30 | Defiance | Peoples Gas and Electric Co | June 1,1901 | May 31,1902 | 4.53 | 4.53 | 100,000 | 100,000 |
| 31 | Delaware | Delaware Electric Street Rwy. Co | June 1,1901 | Mar. 31,1902 | 7.50 | 7.50 | 50,000 | 50,000 |
| 32 | Dennison, Uhrichsville | United Electric Co | Jan. 1,1902 | Dec. 31,1902 | 2.03 | 2.03 | 28,200 | 28,200 |
| 33 | East Liverpool, Wellsville | East Liverpool Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 14.71 | 14.71 | 300,000 | 300,000 |
| 34 | Lancaster | Lancaster Traction Co | Jan. 1,1902 | Dec. 31,1902 | 3.81 | 3.81 | 100,000 | 100,000 |
| 35 | Lima | Lima Electric Railway and Light Co | Jan. 1,1902 | Dec. 31,1902 | 18.55 | 20.55 | 400,000 | 400,000 |
| 36 | Lima, Wapakoneta, Celina, Sidney, Piqua. | Western Ohio Rwy. Co | Mar. 15,1902 | Jan. 14,1903 | 77.97 | 80.57 | 3,000,000 | 2,063,000 |
| 37 | Lorain, Elyria | Lorain Street Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 11.67 | 11.67 | 750,000 | 750,000 |
| 38 | Mansfield, Shelby | Mansfield Electric Railway, Light and Power Co. | Jan. 1,1902 | Dec. 31,1902 | 21.00 | 21.00 | 400,000 | 400,000 |
| 39 | Marion | Marion Street Rwy. Co | Apr. 1,1901 | Mar. 31,1902 | 4.28 | 4.28 | 100,000 | 50,000 |
| 40 | Mt. Vernon | Mt. Vernon Electric Rwy. Co | Feb. 1,1902 | Jan. 31,1903 | 5.10 | 5.10 | 400,000 | 75,000 |
| 41 | Newark, Granville | Newark and Granville Street Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 13.89 | 13.89 | 300,000 | 300,000 |
| 42 | New Philadelphia, Canal Dover, Uhrichsville. | Tuscarawas Traction Co | Jan. 1,1902 | Dec. 31,1902 | 13.43 | 13.43 | 250,000 | 244,000 |
| 43 | Pomeroy, Middleport, Racine | Ohio River Electric Railway and Power Co. | July 1,1901 | June 30,1902 | 13.02 | 13.02 | 300,000 | 300,000 |
| 44 | Portsmouth | Portsmouth Street Railroad and Light Co | Jan. 1,1902 | Dec. 31,1902 | 5.50 | 5.50 | 125,000 | 125,000 |
| 45 | Salem | Salem Electric Rwy. Co | July 1,1901 | June 30,1902 | 2.65 | 2.65 | 100,000 | 100,000 |
| 46 | Springfield | Springfield Rwy. Co | July 1,1901 | June 30,1902 | 28.13 | 28.13 | 1,000,000 | 1,000,000 |
| 47 | Springfield, Xenia | Springfield and Xenia Traction Co | July 1,1902 | Nov. 30,1902 | 18.08 | 18.68 | 500,000 | 500,000 |
| 48 | Steubenville | Steubenville and Pleasant Heights Traction Co. | May 1,1902 | Dec. 31,1902 | 3.08 | 3.08 | 150,000 | 150,000 |
| 49 | Steubenville, Toronto | Steubenville Traction and Light Co | Jan. 1,1902 | Dec. 31,1902 | 12.78 | 12.78 | 400,000 | 400,000 |
| 50 | Tiffin | Electric Railway and Power Co | Jan. 1,1901 | Dec. 31,1901 | 7.33 | 7.33 | 50,000 | 50,000 |
| 51 | Tiffin, Bascom, Fostoria | Tiffin, Fostoria and Eastern Electric Rwy. Co. | May 1,1901 | Apr. 30,1902 | 17.00 | 17.00 | 175,000 | 175,000 |
| 52 | Toledo | Toledo Railways and Light Co | Jan. 1,1901 | Dec. 31,1901 | 97.78 | 97.78 | 12,000,000 | 12,000,000 |
| 53 | Toledo, Bowling Green, Findlay | Toledo, Bowling Green and Southern Traction Co. | May 1,1901 | Apr. 30,1902 | 40.37 | 52.37 | 1,500,000 | 660,000 |
| 54 | Toledo, Fostoria, Findlay | Toledo, Fostoria and Findlay Rwy. Co | Nov. 1,1901 | Oct. 31,1902 | 16.28 | 17.28 | 1,500,000 | 450,000 |
| 55 | Toledo, Dennison; Morenci, Adrian (Mich.). | Toledo and Western Rwy. Co | July 1,1901 | June 30,1902 | [12]66.59 | [13]70.59 | 1,800,000 | 1,500,000 |
| 56 | Toledo, Fremont, Sandusky, Norwalk, Lorain, Cleveland. | Lake Shore Electric Rwy. Co | Nov. 1,1901 | Oct. 31,1902 | 160.43 | 183.41 | 6,000,000 | 6,000,000 |
| 57 | Toledo, Maumee, Perrysburg, Waterville. | Toledo and Maumee Valley Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 20.22 | 28.00 | 400,000 | 400,000 |
| 58 | Wellston, Jackson | Wellston and Jackson Belt Rwy. Co.[13] | July 1,1901 | June 30,1902 | 10.50 | 10.50 | 500,000 | 255,000 |

[1] Exclusive of 63.48 miles lying outside of state, but including 48.55 miles in state owned by outside companies. Total owned by companies in state, 2,353.43 miles; total operated, 2,469.76.
[2] Exclusive of $1,147,336, investments other than street railways and electric-light plants owned.
[3] Includes electric-light plant.
[4] Covers operations of Stark Electric Railroad Company and Alliance Electric Railroad Company for the year reported.
[5] Includes electric-light plant and other investments.
[6] Includes investments other than street railways.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $110,657,200 | $99,643,650 | ..... | $2,289,554 | $9,850,000 | $9,250,000 | ..... | $344,000 | $73,648,500 | $61,242,000 | ..... | $170,135,650 | [2]$71,805 | |
| 150,000 | 150,000 | ..... | ..... | ..... | ..... | ..... | ..... | 75,000 | 75,000 | 6 | 225,000 | 39,130 | 1 |
| 700,000 | 680,000 | ..... | ..... | ..... | ..... | ..... | ..... | 700,000 | 680,000 | 5 | 1,360,000 | 49,009 | 2 |
| 225,000 | 225,000 | ..... | ..... | ..... | ..... | ..... | ..... | 150,000 | ..... | 5 | 225,000 | 13,220 | 3 |
| 500,000 | 300,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | ..... | ..... | [3]300,000 | 150,000 | 4 |
| 1,000,000 | 850,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 750,000 | 5 | 1,600,000 | 59,325 | 5 |
| 1,000,000 | 1,000,000 | ..... | ..... | 600,000 | 600,000 | 3 | 18,000 | 1,673,000 | 1,673,000 | 5 | 3,273,000 | 65,238 | 6 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 75,000 | 75,000 | 6 | [5]175,000 | 34,247 | 7 |
| 2,000,000 | 2,000,000 | 5 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [6]2,000,000 | 97,370 | 8 |
| 20,000,000 | 18,011,450 | 5¼,5½ | 979,356 | ..... | ..... | ..... | ..... | 724,500 | 724,500 | 5,6 | 18,735,950 | | 8a |
| 75,000 | 75,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [6]75,000 | 122,951 | 9 |
| 1,100,000 | 800,000 | ..... | ..... | 1,100,000 | 1,000,000 | 5 | [7]37,500 | ..... | ..... | ..... | 1,800,000 | 55,385 | 10 |
| 5,000,000 | 3,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 5,000,000 | 3,500,000 | 5 | 6,500,000 | 82,961 | 11 |
| 750,000 | 750,000 | ..... | ..... | ..... | ..... | ..... | ..... | 750,000 | 750,000 | 5 | 1,500,000 | 38,217 | 12 |
| 13,000,000 | 13,000,000 | 4 | 520,000 | ..... | ..... | ..... | ..... | 4,350,000 | 4,350,000 | 5,6 | [6]17,350,000 | 126,329 | 13 |
| 8,000,000 | 7,600,000 | 5 | 380,000 | ..... | ..... | ..... | ..... | 2,026,000 | 2,026,000 | 5 | 9,626,000 | 96,550 | 14 |
| 2,000,000 | 1,500,000 | 3 | [7]42,000 | ..... | ..... | ..... | ..... | 1,500,000 | 1,375,000 | 5,6 | [6]2,875,000 | 42,279 | 15 |
| 2,500,000 | 2,500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 2,500,000 | 2,186,000 | 5 | [6]4,686,000 | 52,067 | 16 |
| 2,000,000 | 1,556,000 | ..... | ..... | ..... | ..... | ..... | ..... | 2,000,000 | 1,402,000 | 5,6 | 2,958,000 | 68,377 | 17 |
| 2,500,000 | 2,500,000 | ..... | ..... | 1,000,000 | 1,000,000 | 5 | 50,000 | 3,000,000 | 3,000,000 | 5 | [5]6,500,000 | 67,114 | 18 |
| 3,500,000 | 3,000,000 | ..... | ..... | 3,500,000 | 3,000,000 | 5 | 150,000 | 7,000,000 | 5,605,000 | 4,5 | 11,605,000 | 109,039 | 19 |
| 1,500,000 | 1,500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,500,000 | 1,500,000 | 5 | 3,000,000 | 51,195 | 20 |
| 250,000 | 250,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 210,000 | 5 | 460,000 | 32,857 | 20a |
| 1,000,000 | 1,000,000 | ..... | ..... | 500,000 | 500,000 | 1½ | 7,500 | 1,500,000 | 1,125,000 | 5 | 2,625,000 | 60,345 | 21 |
| 1,500,000 | 1,490,600 | 6 | 89,436 | 600,000 | 600,000 | 6 | 36,000 | 65,000 | 65,000 | 6 | 2,155,600 | 88,781 | 22 |
| 1,100,000 | 1,100,000 | 5 | 55,000 | ..... | ..... | ..... | ..... | 500,000 | 450,000 | 5 | 1,550,000 | 74,879 | 23 |
| 19,000 | 19,000 | 5 | 950 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 19,000 | 2,405 | 24 |
| 400,000 | 400,000 | ..... | ..... | 400,000 | 400,000 | 5 | 20,000 | ..... | ..... | ..... | 800,000 | 35,956 | 25 |
| 450,000 | 450,000 | 2 | 9,000 | ..... | ..... | ..... | ..... | 450,000 | 450,000 | 5 | [6]900,000 | 22,472 | 26 |
| 1,500,000 | 759,500 | 2 | 15,000 | ..... | ..... | ..... | ..... | 750,000 | 750,000 | 5 | [6]1,509,500 | 31,041 | 27 |
| 250,000 | 250,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 155,000 | 5 | 405,000 | 74,449 | 27a |
| 500,000 | 500,000 | 2½ | 12,500 | 500,000 | 500,000 | 5 | 25,000 | ..... | ..... | ..... | 1,000,000 | 35,714 | 28 |
| 300,000 | 300,000 | 3½ | 9,600 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 300,000 | 20,408 | 28a |
| 650,000 | 650,000 | ..... | ..... | 150,000 | 150,000 | ..... | ..... | 800,000 | 800,000 | 5 | 1,600,000 | 31,923 | 29 |
| 100,000 | 100,000 | 1½ | 1,850 | ..... | ..... | ..... | ..... | 10,000 | 7,000 | 5 | [3]107,000 | 23,620 | 30 |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 50,000 | 6,667 | 31 |
| 28,200 | 28,200 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [3]28,200 | 13,892 | 32 |
| 300,000 | 300,000 | ..... | ..... | ..... | ..... | ..... | ..... | 435,000 | 435,000 | 5 | 735,000 | 49,966 | 33 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 68,000 | 5,6 | 168,000 | 44,094 | 34 |
| 400,000 | 400,000 | ..... | ..... | ..... | ..... | ..... | ..... | 400,000 | 400,000 | 5 | 800,000 | 43,127 | 35 |
| 3,000,000 | 2,063,000 | ..... | ..... | ..... | ..... | ..... | ..... | 3,000,000 | 2,063,000 | 5 | 4,126,000 | 52,918 | 36 |
| 750,000 | 750,000 | ..... | ..... | ..... | ..... | ..... | ..... | 750,000 | 550,000 | 5,6 | 1,300,000 | 111,397 | 37 |
| 400,000 | 400,000 | ..... | ..... | ..... | ..... | ..... | ..... | 400,000 | 400,000 | 5 | [3]800,000 | 38,095 | 38 |
| 100,000 | 50,000 | 4 | 2,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [6]50,000 | 11,682 | 39 |
| 400,000 | 75,000 | ..... | ..... | ..... | ..... | ..... | ..... | 30,000 | 24,000 | 6 | 99,000 | 19,412 | 40 |
| 300,000 | 300,000 | 5 | 15,000 | ..... | ..... | ..... | ..... | 250,000 | 190,000 | 5 | 490,000 | 35,277 | 41 |
| 250,000 | 244,000 | 3 | [11]5,612 | ..... | ..... | ..... | ..... | 200,000 | 200,000 | 5,6 | 444,000 | 33,060 | 42 |
| 300,000 | 300,000 | ..... | ..... | ..... | ..... | ..... | ..... | 315,000 | 315,000 | 5 | 615,000 | 47,235 | 43 |
| 125,000 | 125,000 | ..... | ..... | ..... | ..... | ..... | ..... | 83,000 | 83,000 | 6 | [3]208,000 | 37,818 | 44 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 50,000 | 50,000 | 6 | 150,000 | 56,604 | 45 |
| 1,000,000 | 1,000,000 | 1½ | 16,500 | ..... | ..... | ..... | ..... | 650,000 | 600,000 | 5,6 | 1,600,000 | 56,879 | 46 |
| 500,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 5 | 1,000,000 | 55,310 | 47 |
| 150,000 | 150,000 | ..... | ..... | ..... | ..... | ..... | ..... | 50,000 | 38,000 | 5 | 188,000 | 61,039 | 48 |
| 400,000 | 400,000 | ..... | ..... | ..... | ..... | ..... | ..... | 280,000 | 280,000 | 5 | 680,000 | 53,208 | 49 |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 50,000 | 6,821 | 50 |
| 175,000 | 175,000 | 5 | 8,750 | ..... | ..... | ..... | ..... | 175,000 | 175,000 | 5 | 350,000 | 20,588 | 51 |
| 12,000,000 | 12,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 12,000,000 | 9,875,000 | 4,5 | [5]21,875,000 | 223,717 | 52 |
| 1,500,000 | 660,000 | 2½ | 15,000 | ..... | ..... | ..... | ..... | 1,500,000 | 1,036,500 | 5 | [3]1,696,500 | 42,024 | 53 |
| 1,500,000 | 450,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,500,000 | 450,000 | 5 | 900,000 | 55,283 | 54 |
| 1,800,000 | 1,500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,250,000 | 1,250,000 | 5 | 2,750,000 | 41,297 | 55 |
| 4,500,000 | 4,500,000 | ..... | ..... | 1,500,000 | 1,500,000 | ..... | ..... | 6,000,000 | 4,000,000 | 5 | 10,000,000 | 62,332 | 56 |
| 400,000 | 400,000 | ..... | ..... | ..... | ..... | ..... | ..... | 400,000 | 400,000 | 5 | 800,000 | 39,565 | 57 |
| 500,000 | 255,000 | ..... | ..... | ..... | ..... | ..... | ..... | 300,000 | 300,000 | 6 | 555,000 | 52,857 | 58 |

[7] Dividends not declared on full amount of stock shown.
[8] Includes 9 miles in Indiana.
[9] Includes 5.12 miles leased to Cleveland Electric Railway Company.
[10] This company also leases the Urbana, Bellefontaine and Northern, with 21.75 miles under construction.
[11] Dividends declared on a part of the stock for 9 months only.
[12] Includes 30.19 miles in Michigan.
[13] Leased to and operated by a steam railroad.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | OHIO—Continued. | | | | | | | |
| 59 | Worthington, Clintonville | Worthington, Clintonville and Columbus Street Rwy. Co. | June 1,1901 | May 31,1902 | 5.12 | 5.12 | $40,000 | $31,900 |
| 60 | Youngstown | Youngstown Park and Falls Street Rwy. Co. | May 1,1901 | Apr. 30,1902 | 6.13 | 6.13 | 200,000 | 200,000 |
| 61 | Youngstown; Sharon, Newcastle (Pa.). | Youngstown-Sharon Railway and Light Co. | Jan. 1,1902 | Dec. 31,1902 | [1]42.25 | [1]42.25 | 920,000 | 920,000 |
| 62 | Youngstown, Warren, Niles, Lowellsville. | Mahoning Valley Rwy. Co | July 1,1901 | June 30,1902 | 53.53 | 53.53 | 2,500,000 | 2,500,000 |
| 63 | Zanesville | Zanesville Electric Rwy. Co | July 1,1901 | June 30,1902 | 10.00 | 10.00 | 300,000 | 300,000 |
| | OREGON. | | | | | | | |
| | Total for state | | | | 136.67 | 140.48 | 4,050,000 | 2,788,550 |
| 1 | Astoria | Astoria Electric Co | Mar. 1,1901 | Feb. 28,1902 | 4.10 | 4.10 | 100,000 | 100,000 |
| 2 | Portland | Portland Rwy. Co | July 1,1901 | June 30,1902 | 28.03 | 30.19 | 800,000 | 800,000 |
| 3 | Portland and vicinity | City and Suburban Rwy. Co | Sept. 1,1901 | Aug. 31,1902 | 65.50 | 65.50 | 2,500,000 | 1,238,550 |
| 4 | Portland, Sellwood | Portland City and Oregon Rwy. Co | July 1,1901 | June 30,1902 | 24.59 | 25.99 | 500,000 | 500,000 |
| 5 | Salem | Salem Light, Power and Traction Co | July 1,1901 | June 30,1902 | 11.95 | 11.95 | 130,000 | 130,000 |
| 6 | Union | Union Street and Suburban Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 2.50 | 2.75 | 20,000 | 20,000 |
| | PENNSYLVANIA. | | | | | | | |
| | Total for state | | | | [2]2,504.58 | [2]2,542.07 | 235,711,100 | 211,728,495 |
| 1 | Allentown, South Bethlehem, Easton, Bethlehem, Catasauqua, Emaus, Slatington. | Lehigh Valley Traction Co | July 1,1901 | June 30,1902 | 54.49 | [6]148.81 | 3,000,000 | 2,654,080 |
| 1a | | Allentown and Slatington Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 21.80 | | 240,000 | 240,000 |
| 1b | | Bethlehem and Nazareth Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 10.20 | | 150,000 | 150,000 |
| 1c | | Coplay, Egypt and Ironton Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 3.62 | | 150,000 | 60,000 |
| 1d | | Easton Consolidated Electric Co. (lessor) | July 1,1901 | June 30,1902 | | | 450,000 | 450,000 |
| 1e | | Easton Transit Co. (lessor)[3] | July 1,1901 | June 30,1902 | [6]11.44 | | 300,000 | 300,000 |
| 1f | | Easton and Bethlehem Transit Co. (lessor). | July 1,1901 | June 30,1902 | 4.11 | | 125,000 | 125,000 |
| 1g | | Pennsylvania Motor Co. (lessor) | July 1,1901 | June 30,1902 | 3.34 | | 120,000 | 120,000 |
| 1h | | Freemansburg Street Rwy. Co. (lessor)[3] | July 1,1901 | June 30,1902 | 7.50 | | 150,000 | 150,000 |
| 1i | | Northampton Central Street Rwy. Co. (lessor).[3] | July 1,1901 | June 30,1902 | 5.81 | | 72,000 | 72,000 |
| 1j | | Easton, Palmer and Bethlehem Street Rwy. Co. (lessor).[3] | July 1,1901 | June 30,1902 | 11.40 | | 200,000 | 200,000 |
| 1k | | Slate Belt Electric Street Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 15.10 | | 360,000 | 360,000 |
| 2 | Allentown, Emaus, Quakertown, Lansdale, North Wales, Philadelphia. | Philadelphia and Lehigh Valley Traction Co. | July 1,1901 | June 30,1902 | 39.21 | 50.05 | 1,500,000 | 1,500,000 |
| 2a | | Quakertown Traction Co. (lessor) | Oct. 1,1901 | June 30,1902 | 10.84 | | 300,000 | 300,000 |
| 3 | Allentown, Kutztown | Allentown and Kutztown Traction Co. (now Allentown and Reading). | July 1,1901 | June 30,1902 | 22.00 | 22.00 | 250,000 | 250,000 |
| 4 | Altoona | Altoona and Logan Valley Electric Rwy. Co. | July 1,1901 | June 30,1902 | 19.00 | 27.50 | 500,000 | 415,350 |
| 5 | Bangor, East Bangor | Bangor and East Bangor Street Rwy. Co | Oct. 15,1901 | June 30,1902 | 2.75 | 2.75 | 40,000 | 40,000 |
| 6 | Beaver Falls, New Brighton, Rochester, Freedom, Monaca, Beaver. | Beaver Valley Traction Co | July 1,1901 | June 30,1902 | 22.50 | 22.50 | 1,000,000 | 1,000,000 |
| 7 | Beaver Falls, New Brighton | Riverview Electric Street Rwy. Co | Aug. 12,1901 | June 30,1902 | 3.63 | 3.63 | 75,000 | 75,000 |
| 8 | Beaver Falls, Patterson Heights | Patterson Heights Street Rwy. Co | Nov. 1,1901 | Oct. 31,1902 | .45 | .45 | 6,000 | 6,000 |
| 9 | Bloomsburg, West Berwick | Columbia and Montour Electric Rwy. Co | July 1,1901 | June 30,1902 | 16.25 | 16.25 | 375,000 | 200,000 |
| 10 | Bradford, Custer City, Lewis Run | Bradford Electric Street Rwy. Co | July 1,1901 | June 30,1902 | 11.47 | 11.47 | 130,000 | 130,000 |
| 11 | Butler, Lyndora | Butler Passenger Rwy. Co | June 20,1901 | June 19,1902 | 7.25 | 7.25 | 50,000 | 50,000 |
| 12 | Carlisle, Mt. Holly Springs | Carlisle and Mt. Holly Rwy. Co | July 1,1901 | June 30,1902 | 6.30 | 6.80 | 100,000 | 100,000 |
| 13 | Carlisle, Mechanicsburg | Cumberland Valley Traction Co | July 1,1901 | June 30,1902 | 20.00 | 20.00 | 550,000 | 446,400 |
| 14 | Chester, Media, Philadelphia | Chester Traction Co | July 1,1901 | June 30,1902 | | 32.07 | 500,000 | 500,000 |
| 14a | | Chester, Darby, and Philadelphia Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 6.94 | | 125,000 | 100,000 |
| 14b | | Chester and Media Electric Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 5.28 | | 100,000 | 100,000 |
| 14c | | Chester and Delaware Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 2.78 | | 100,000 | 50,000 |
| 14d | | Chester Street Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 6.92 | | 150,000 | 150,000 |
| 14e | | Union Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 10.15 | | 200,000 | 100,000 |
| 15 | Chester, Swarthmore, Darby | Media, Middletown, Aston and Chester Electric Rwy. Co., (including Philadelphia, Morton and Swarthmore Street Passenger Rwy. Co.). | July 1,1901 | June 30,1902 | 18.95 | 18.95 | 750,000 | 322,800 |
| 16 | Chester, Tinicum | Philadelphia and Chester Rwy. Co | July 1,1901 | June 30,1902 | 8.72 | 8.72 | 350,000 | 350,000 |
| 17 | Connellsville | Connellsville Suburban Street Rwy. Co | July 1,1901 | June 30,1902 | 2.50 | 2.50 | 25,000 | 25,000 |
| 18 | Doylestown, Newtown, Langhorne, Bristol. | Newtown Electric Street Rwy. Co | July 1,1901 | June 30,1902 | 18.70 | 27.89 | 300,000 | 300,000 |
| 18a | | Newtown, Langhorne and Bristol Trolley Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 9.19 | | 200,000 | 118,000 |
| 19 | Doylestown and vicinity | Doylestown and Easton Street Rwy. Co | May 29,1902 | June 30,1902 | 6.00 | 6.00 | 825,000 | 85,500 |
| 20 | Doylestown, Willow Grove | Doylestown and Willow Grove Rwy. Co | July 1,1901 | June 30,1902 | 13.38 | 13.38 | 500,000 | 500,000 |

[1] Includes 24.29 miles in Pennsylvania.
[2] Includes electric-light plant.
[3] Exclusive of 7.38 miles lying outside of state, but including 31.05 miles in state owned by outside companies. Total owned by companies in state, 2,480.91 miles, total operated, 2,518.40 miles.
[4] Capital reported for 195 companies only, representing 2,476.31 miles of track owned.
[5] Exclusive of $31,568,967, investments other than street railways and electric-light plants owned.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $40,000 | $31,900 | | | | | | | $12,000 | $12,000 | 5,6 | $43,900 | $8,574 | 59 |
| 200,000 | 200,000 | 6 | $12,000 | | | | | 200,000 | 194,000 | 5 | 394,000 | 64,274 | 60 |
| 920,000 | 920,000 | | | | | | | 920,000 | 920,000 | 5 | 1,840,000 | 43,550 | 61 |
| 2,500,000 | 2,500,000 | | | | | | | 2,500,000 | 2,500,000 | 5 | 5,000,000 | 93,406 | 62 |
| 300,000 | 300,000 | | | | | | | 300,000 | 250,000 | 4 | 550,000 | 55,000 | 63 |
| 3,850,000 | 2,588,550 | | 49,048 | $200,000 | $200,000 | | $5,000 | 6,130,000 | 2,737,000 | | [2]5,525,550 | 40,430 | |
| 100,000 | 100,000 | | | | | | | | | | 100,000 | 24,390 | 1 |
| 700,000 | 700,000 | | | 100,000 | 100,000 | 5 | 5,000 | 2,500,000 | 860,000 | 5,6 | 1,660,000 | 59,222 | 2 |
| 2,500,000 | 1,238,550 | 4 | 49,048 | | | | | 3,000,000 | 1,247,000 | 4,6 | 2,485,550 | 37,947 | 3 |
| 400,000 | 400,000 | | | 100,000 | 100,000 | | | 500,000 | 500,000 | 6 | 1,000,000 | 40,667 | 4 |
| 130,000 | 130,000 | | | | | | | 130,000 | 130,000 | 5 | [2]260,000 | 21,757 | 5 |
| 20,000 | 20,000 | | | | | | | | | | 20,000 | 8,000 | 6 |
| 211,768,900 | 191,291,115 | | 7,173,485 | 23,942,200 | 20,437,380 | | 977,395 | 90,221,600 | 75,563,700 | | [4]287,292,195 | [5]103,267 | |
| 2,500,000 | 2,477,400 | 3½ | 84,581 | 500,000 | 176,680 | 6 | 10,600 | 3,000,000 | 3,000,000 | 4 | 5,654,080 | | 1 |
| 240,000 | 240,000 | 5 | 12,000 | | | | | 500,000 | 500,000 | 4 | 740,000 | | 1a |
| 150,000 | 150,000 | 5 | 7,500 | | | | | 150,000 | 150,000 | 5 | 300,000 | | 1b |
| 150,000 | 60,000 | | | | | | | 150,000 | 150,000 | 5 | 210,000 | | 1c |
| 450,000 | 450,000 | 6 | 27,000 | | | | | 1,300,000 | 880,000 | 5 | 1,330,000 | [7]60,941 | 1d |
| 300,000 | 300,000 | | | | | | | 450,000 | 300,000 | 5 | 600,000 | | 1e |
| 125,000 | 125,000 | | | | | | | 60,000 | 60,000 | 6 | 185,000 | | 1f |
| 120,000 | 120,000 | | | | | | | 60,000 | 60,000 | 6 | 180,000 | | 1g |
| 150,000 | 150,000 | | | | | | | 125,000 | 30,000 | 5 | 180,000 | | 1h |
| 72,000 | 72,000 | | | | | | | | | | 72,000 | | 1i |
| 100,000 | 100,000 | | | 100,000 | 100,000 | | | 200,000 | 200,000 | 5 | 400,000 | | 1j |
| 360,000 | 360,000 | 3½ | 11,700 | | | | | 360,000 | 360,000 | 5 | 720,000 | | 1k |
| 1,500,000 | 1,500,000 | | | | | | | 2,500,000 | 1,932,000 | 5 | 3,432,000 | [9]46,891 | 2 |
| 300,000 | 300,000 | | | | | | | 300,000 | 300,000 | 5 | [10]600,000 | 55,351 | 2a |
| 250,000 | 250,000 | | | | | | | 250,000 | 195,000 | 5 | 445,000 | 20,227 | 3 |
| 500,000 | 415,350 | 10 | 41,530 | | | | | 500,000 | 470,500 | 5 | 885,850 | 46,624 | 4 |
| 40,000 | 40,000 | | | | | | | 40,000 | 40,000 | 5 | 80,000 | 29,091 | 5 |
| 1,000,000 | 1,000,000 | | | | | | | 1,000,000 | 896,000 | 5,6 | 1,896,000 | 84,267 | 6 |
| 75,000 | 75,000 | | | | | | | 75,000 | 75,000 | 5 | 150,000 | 41,322 | 7 |
| 6,000 | 6,000 | | | | | | | 6,000 | 5,700 | 6 | 11,700 | 26,000 | 8 |
| 375,000 | 200,000 | | | | | | | 375,000 | 198,972 | 5 | 398,972 | 24,552 | 9 |
| 130,000 | 130,000 | | | | | | | 130,000 | 127,500 | 5 | 257,500 | 22,450 | 10 |
| 50,000 | 50,000 | | | | | | | | | | 50,000 | 6,897 | 11 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | 200,000 | 31,746 | 12 |
| 500,000 | 402,900 | | | 50,000 | 43,500 | | | 300,000 | 277,500 | 5 | 723,900 | 36,195 | 13 |
| 500,000 | 500,000 | 4 | 20,000 | | | | | 250,000 | 250,000 | 5 | 750,000 | | 14 |
| 125,000 | 100,000 | 6 | 6,000 | | | | | 125,000 | 125,000 | 5 | 225,000 | | 14a |
| 100,000 | 100,000 | 6 | 6,000 | | | | | 100,000 | 100,000 | 5 | 200,000 | | 14b |
| 100,000 | 50,000 | 10 | 5,000 | | | | | | | | 50,000 | [11]45,990 | 14c |
| 150,000 | 150,000 | 10 | 15,000 | | | | | | | | 150,000 | | 14d |
| 200,000 | 100,000 | | | | | | | 200,000 | 200,000 | 5 | 300,000 | | 14e |
| 750,000 | 322,800 | | | | | | | 600,000 | | | 322,800 | 17,034 | 15 |
| 350,000 | 350,000 | | | | | | | 350,000 | 270,000 | 5 | 620,000 | 71,101 | 16 |
| 25,000 | 25,000 | | | | | | | 175,000 | 175,000 | 5 | [10]200,000 | 80,000 | 17 |
| 300,000 | 300,000 | | | | | | | 300,000 | 300,000 | 5 | 600,000 | 32,086 | 18 |
| 200,000 | 118,000 | | | | | | | 200,000 | 112,700 | 5 | 230,700 | 25,103 | 18a |
| 825,000 | 85,500 | | | | | | | 852,000 | 80,000 | 5 | 165,500 | 27,583 | 19 |
| 500,000 | 500,000 | | | | | | | 500,000 | 500,000 | 4 | 1,000,000 | 74,738 | 20 |

[6] Includes 4.38 miles in New Jersey.
[7] Exclusive of $1,502 485, investments other than street railways.
[8] This company's stocks are owned by the Easton Consolidated Electric Company.
[9] Exclusive of $1,593,396, investments other than street railways.
[10] Includes investments other than street railways.
[11] Exclusive of $200,108, investments other than street railways.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | PENNSYLVANIA—Continued. | | | | | | | |
| 21 | Dubois | Dubois Traction Co | July 1 1901 | June 30, 1902 | 1.34 | 1.34 | $17,500 | $17,500 |
| 22 | Easton, Nazareth | Easton and Nazareth Street Rwy. Co. | July 1 901 | June 30, 1902 | 10.00 | 10.00 | 250,000 | 250,000 |
| 23 | Erie | Erie Electric Motor Co | Jan. 1,1902 | Dec. 31, 1902 | 28.00 | 28.00 | 1,250,000 | 1,250,000 |
| 24 | Erie, Cambridge Springs | Erie Traction Co | July 1,1901 | June 30, 1902 | 28.00 | 28.00 | 500,000 | 500,000 |
| 25 | Erie, Northeast | Erie Rapid Transit Street Rwy. Co. | Sept. 1,1901 | June 30, 1902 | 13.00 | 16.00 | 500,000 | 500,000 |
| 26 | Franklin | Franklin Electric Street Rwy. Co | July 1,1901 | June 30, 1902 | 3.74 | 3.74 | 60,000 | 60,000 |
| 27 | Gettysburg | Gettysburg Transit Co | July 1,1901 | June 30, 1902 | 9.50 | 9.50 | 100,000 | 100,000 |
| 28 | Hanover, McSherrystown | Hanover and McSherrystown Street Rwy. Co. | July 1,1901 | June 30, 1902 | 3.73 | 3.73 | 30,000 | 30,000 |
| 29 | Hazelton, Freeland, McAdoo | Lehigh Traction Co | July 1,1901 | June 30, 1902 | 20.09 | 20.09 | 1,000,000 | 1,000,000 |
| 30 | Harrisburg, Middletown, Rockville. | Harrisburg Traction Co | July 1,1901 | June 30, 1902 | 32.00 | 49.00 | 2,000,000 | 2,000,000 |
| 30a | .....do | Harrisburg City Passenger Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 5.00 | ..... | 125,000 | 125,000 |
| 30b | .....do | Middletown, Highspire and Steelton Street Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 12.00 | ..... | 100,000 | 100,000 |
| 31 | Harrisburg, Mechanicsburg, and vicinity. | Harrisburg and Mechanicsburg Electric Rwy. Co. | July 1,1901 | June 30, 1902 | 7.94 | 15.35 | 225,000 | 144,500 |
| 31a | .....do | White Hill and Mechanicsburg Passenger Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 7.30 | ..... | 70,000 | 70,000 |
| 32 | Johnstown | Cambria Incline Plane Co | Oct. 1,1901 | Sept. 30, 1902 | .34 | .34 | 50,000 | 50,000 |
| 33 | Johnstown, Windber | Johnstown Passenger Rwy. Co | July 1,1901 | June 30, 1902 | 31.30 | 31.30 | 2,000,000 | 1,993,950 |
| 34 | Kittanning, Manorville, Ford City. | Kittanning and Ford City Street Rwy. Co. | July 1,1901 | June 30, 1902 | 5.25 | 5.25 | 50,000 | 50,000 |
| 35 | Lancaster, Columbia, Marietta, Strasburg. | Conestoga Traction Co | July 1,1901 | June 30, 1902 | 34.53 | 83.81 | 4,000,000 | 4,000,000 |
| 35a | .....do | Lancaster and Columbia Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 9.16 | ..... | 50,000 | 37,500 |
| 35b | .....do | Lancaster, Mechanicsburg and New Holland Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 20.62 | ..... | 300,000 | 300,000 |
| 35c | .....do | Lancaster, Petersburg and Manheim Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 8.00 | ..... | 175,000 | 175,000 |
| 35d | .....do | Lancaster, Willow Street, Lampeter and Strasburg Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 11.50 | ..... | 225,000 | 225,000 |
| 36 | Lebanon and vicinity | Lebanon Valley Street Rwy. Co | July 1,1901 | June 30, 1902 | 23.00 | 23.00 | 500,000 | 500,000 |
| 37 | Lewistown, Reedsville | Lewistown and Reedsville Electric Rwy. Co | July 1,1901 | June 30, 1902 | 6.25 | 6.25 | 150,000 | 150,000 |
| 38 | Lock Haven, Mill Hall | Susquehanna Traction Co | July 1,1901 | June 30, 1902 | 5.35 | 5.35 | 300,000 | 200,000 |
| 39 | Lykens, Williamstown, Tower City. | Lykens and Williams Valley Street Rwy. Co. | July 1,1901 | June 30, 1902 | 10.74 | 10.74 | 200,000 | 188,500 |
| 40 | McKeesport | Highland Grove Traction Co | July 1,1901 | June 30, 1902 | 1.02 | 3.02 | 50,000 | 23,000 |
| 41 | Mahanoy City, Ashland, Girardville, Shenandoah. | Schuylkill Traction Co | July 1,1901 | June 30, 1902 | 28.00 | 28.00 | 2,000,000 | 2,000,000 |
| 42 | Mauch Chunk, Lehighton | Mauch Chunk, Lehighton and Slatington Street Rwy. Co. | July 1,1901 | June 30, 1902 | 13.19 | 13.19 | 600,000 | 600,000 |
| 43 | Meadville, Vallonia | Meadville Traction Co | Nov. 1,1901 | Oct. 31, 1902 | 11.00 | 11.00 | 350,000 | 350,000 |
| 44 | Milton, Watsontown | Lewisburg, Milton and Watsontown Passenger Rwy. Co. | July 1,1901 | June 30, 1902 | 9.88 | 9.88 | 150,000 | 150,000 |
| 45 | Montoursville, Williamsport | Montoursville Passenger Rwy. Co | July 1,1901 | June 30, 1902 | 5.00 | 5.00 | 75,000 | 75,000 |
| 46 | Newcastle | New Castle Traction Co | July 1,1901 | June 30, 1902 | 19.20 | 19.20 | 500,000 | 500,000 |
| 47 | Newcastle, Edenburg | New Castle and Lowell Rwy. Co | Feb. 14,1902 | June 30, 1902 | 12.49 | 12.49 | 550,000 | 550,000 |
| 48 | Norristown, Bridgeport, Philadelphia. | Schuylkill Valley Traction Co | July 1,1901 | June 30, 1902 | ..... | 51.31 | 1,000,000 | 500,000 |
| 48a | .....do | Montgomery County Passenger Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 1.44 | ..... | 150,000 | 150,000 |
| 48b | .....do | Norristown Passenger Rwy. Co. (lessor) | July 1,1901 | June 30, 1902 | 10.46 | ..... | 75,000 | 75,000 |
| 48c | .....do | Citizens Passenger Rwy. Co. (lessor) | July 1,1901 | June 30, 1902 | 4.20 | ..... | 80,000 | 79,520 |
| 48d | .....do | Conshohocken Rwy. Co. (lessor) | July 1,1901 | June 30, 1902 | 5.07 | ..... | 250,000 | 145,900 |
| 48e | .....do | Collegeville Electric Street Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | .94 | ..... | 7,000 | 2,500 |
| 48f | .....do | Roxboro, Chestnut Hill and Norristown Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 17.76 | ..... | 450,000 | 248,400 |
| 48g | .....do | Wissahickon Electric Passenger Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 3.44 | ..... | 250,000 | 239,050 |
| 48h | .....do | Trappe and Limerick Electric Street Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 8.00 | ..... | 250,000 | 200,000 |
| 49 | Norristown, Lansdale | Lansdale and Norristown Electric Rwy. Co. | Sept. 11,1902 | Dec. 31, 1902 | 10.28 | 13.28 | 300,000 | 300,000 |
| 50 | Nanticoke | Peoples Street Rwy. Co | July 1,1901 | June 30, 1902 | 6.00 | 6.00 | 100,000 | 100,000 |
| 51 | Oil City, Rouseville, Siverly | Citizens Traction Co | July 1,1901 | June 30, 1902 | 13.42 | 13.42 | 150,000 | 150,000 |
| 52 | Oil City | Oil City Street Rwy. Co | July 1,1901 | June 30, 1902 | 4.58 | 8.10 | 90,000 | 90,000 |
| 52a | .....do | Oil City Station Rwy. Co. (lessor) | July 1,1901 | June 30, 1902 | 3.52 | ..... | 90,000 | 31,745 |
| 53 | Philadelphia | Union Traction Co | July 1,1901 | June 30, 1902 | ..... | 475.46 | 30,000,000 | 30,000,000 |
| 53a | .....do | Philadelphia Traction Co. (lessor) | July 1,1901 | June 30, 1902 | ..... | ..... | 30,000,000 | 20,000,000 |
| 53b | .....do | West Philadelphia Passenger Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 34.98 | ..... | 750,000 | 750,000 |
| 53c | .....do | Philadelphia City Passenger Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 8.38 | ..... | 1,000,000 | 1,000,000 |
| 53d | .....do | Philadelphia and Darby Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 17.49 | ..... | 200,000 | 200,000 |
| 53e | .....do | Union Passenger Rwy. Co. (lessor) | July 1,1901 | June 30, 1902 | 73.50 | ..... | 1,500,000 | 1,500,000 |
| 53f | .....do | Continental Passenger Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 11.91 | ..... | 1,000,000 | 1,000,000 |
| 53g | .....do | Seventeenth and Nineteenth Streets Passenger Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 9.67 | ..... | 500,000 | 500,000 |
| 53h | .....do | Kessler Street Connecting Passenger Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | .16 | ..... | 5,000 | 5,000 |
| 53i | .....do | Philadelphia and Grays Ferry Passenger Rwy. Co. (lessor). | July 1,1901 | June 30, 1902 | 11.15 | ..... | 1,000,000 | 618,550 |

[1] Only $600,000 of stock had been issued at time dividend was declared.
[2] Dividends not declared on full amount of stock shown.
[3] Exclusive of $30,000, investments other than street railways.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $17,500 | $17,500 | | | | | | | $17,000 | $16,800 | 6 | $34,300 | $25,597 | 21 |
| 250,000 | 250,000 | | | | | | | 250,000 | 250,000 | 5 | 500,000 | 50,000 | 22 |
| 1,250,000 | 1,250,000 | | | | | | | 1,600,000 | 1,000,000 | 5,6 | 2,250,000 | 80,357 | 23 |
| 500,000 | 500,000 | | | | | | | 500,000 | 500,000 | 5 | 1,000,000 | 35,714 | 24 |
| 500,000 | 500,000 | | | | | | | 350,000 | 350,000 | 5 | 850,000 | 65,385 | 25 |
| 60,000 | 60,000 | | | | | | | 50,000 | 50,000 | 6 | 110,000 | 29,412 | 26 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | 200,000 | 21,053 | 27 |
| 30,000 | 30,000 | | | | | | | | | | 30,000 | 8,043 | 28 |
| 1,000,000 | 1,000,000 | | | | | | | 615,000 | 585,000 | 5 | 1,585,000 | 78,895 | 29 |
| 2,000,000 | 2,000,000 | 5 | $100,000 | | | | | 75,000 | 75,000 | 6 | 2,075,000 | 64,844 | 30 |
| 125,000 | 125,000 | 12 | 15,000 | | | | | | | | 125,000 | 25,000 | 30a |
| 100,000 | 100,000 | 10 | 10,000 | | | | | | | | 100,000 | 8,333 | 30b |
| 225,000 | 144,500 | | | | | | | 224,000 | 144,500 | 6 | 289,000 | 36,398 | 31 |
| 70,000 | 70,000 | | | | | | | | | | 70,000 | 9,589 | 31a |
| 50,000 | 50,000 | | | | | | | | | | 50,000 | 147,059 | 32 |
| 2,000,000 | 1,993,950 | 3 | [1] 18,000 | | | | | 2,000,000 | 1,780,000 | 4,6 | 3,773,950 | 120,573 | 33 |
| 50,000 | 50,000 | | | | | | | 50,000 | 27,500 | 6 | 77,500 | 14,762 | 34 |
| 3,200,000 | 3,200,000 | | | $800,000 | $800,000 | | | 2,610,000 | 1,887,500 | 4,5 | 5,887,500 | 170,504 | 35 |
| 50,000 | 37,500 | 20 | 7,500 | | | | | 225,000 | 225,000 | 5 | 262,500 | 28,657 | 35a |
| 300,000 | 300,000 | 8 | 24,000 | | | | | | | | 300,000 | 14,549 | 35b |
| 175,000 | 175,000 | 1 | 1,750 | | | | | | | | 175,000 | 21,875 | 35c |
| 225,000 | 225,000 | ½ | 1,125 | | | | | | | | 225,000 | 19,565 | 35d |
| 500,000 | 500,000 | 2½ | [2] 11,000 | | | | | 500,000 | 500,000 | 5 | 1,000,000 | 43,478 | 36 |
| 150,000 | 150,000 | | | | | | | 275,000 | 150,000 | 5 | 300,000 | [3] 43,200 | 37 |
| 300,000 | 200,000 | | | | | | | 100,000 | 43,000 | 4½,6 | 243,000 | 45,421 | 38 |
| 200,000 | 188,500 | | | | | | | 188,000 | 168,000 | 5 | 356,500 | 33,194 | 39 |
| 50,000 | 23,000 | | | | | | | | | | 23,000 | 22,549 | 40 |
| 1,500,000 | 1,500,000 | | | 500,000 | 500,000 | | | 2,500,000 | 549,000 | 4½,5 | 2,549,000 | 91,036 | 41 |
| 600,000 | 600,000 | | | | | | | 600,000 | 500,000 | 5 | 1,100,000 | 83,397 | 42 |
| 350,000 | 350,000 | | | | | | | 300,000 | 300,000 | 5 | 650,000 | 59,091 | 43 |
| 150,000 | 150,000 | | | | | | | 150,000 | 150,000 | 5 | 300,000 | 30,364 | 44 |
| 75,000 | 75,000 | | | | | | | 75,000 | 75,000 | 5 | 150,000 | 30,000 | 45 |
| 500,000 | 500,000 | | | | | | | 500,000 | 500,000 | 5 | 1,000,000 | 52,083 | 46 |
| 550,000 | 550,000 | | | | | | | 550,000 | 550,000 | 5 | 1,100,000 | 88,070 | 47 |
| 1,000,000 | 500,000 | | | | | | | 500,000 | 335,000 | 5 | 835,000 | | 48 |
| 150,000 | 150,000 | | | | | | | 150,000 | 15,000 | 6 | 165,000 | | 48a |
| 66,700 | 66,700 | 5 3/10 | 3,548 | 8,300 | 8,300 | 5 3/10 | $442 | 75,000 | 75,000 | 6 | 150,000 | | 48b |
| 80,000 | 79,520 | 2½ | 1,985 | | | | | 80,000 | 80,000 | 5 | 159,520 | | 48c |
| 250,000 | 145,900 | | | | | | | 250,000 | 100,000 | 5 | 245,900 | | 48d |
| 7,000 | 2,500 | | | | | | | | | | 2,500 | [4] 39,412 | 48e |
| 450,000 | 248,400 | 23½ | [2] 46,624 | | | | | 450,000 | 371,000 | 5 | 619,400 | | 48f |
| 250,000 | 239,050 | 1½ | 4,303 | | | | | | | | 239,050 | | 48g |
| 250,000 | 200,000 | | | | | | | 250,000 | 200,000 | 4½ | 400,000 | | 48h |
| 300,000 | 300,000 | | | | | | | 300,000 | 300,000 | 5 | 600,000 | 58,366 | 49 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 6 | 200,000 | 33,333 | 50 |
| 150,000 | 150,000 | | | | | | | | | | 150,000 | 11,177 | 51 |
| 90,000 | 90,000 | | | | | | | 40,000 | 25,000 | 6 | 115,000 | [5] 22,380 | 52 |
| 90,000 | 31,745 | | | | | | | | | | 31,745 | 9,018 | 52a |
| 30,000,000 | 30,000,000 | | | | | | | | (6) | | 30,000,000 | | 53 |
| 30,000,000 | 20,000,000 | 8 | 1,600,000 | | | | | 1,300,000 | 777,428 | 4 | 20,777,428 | | 53a |
| 750,000 | 750,000 | 20 | 150,000 | | | | | 996,000 | 996,000 | 5,6 | 1,746,000 | | 53b |
| 1,000,000 | 1,000,000 | 15 | 150,000 | | | | | 300,000 | 300,000 | 5 | 1,300,000 | | 53c |
| 200,000 | 200,000 | 4 | 8,000 | | | | | 100,000 | 100,000 | 4 | 300,000 | | 53d |
| 1,500,000 | 1,500,000 | 19 | 285,000 | | | | | 750,000 | 750,000 | 5 | 2,250,000 | | 53e |
| 1,000,000 | 1,000,000 | 12 | 120,000 | | | | | 350,000 | 280,000 | 6 | 1,280,000 | | 53f |
| 500,000 | 500,000 | 3 | 15,000 | | | | | 100,000 | 100,000 | 5 | 600,000 | | 53g |
| 5,000 | 5,000 | 6 | 300 | | | | | | | | 5,000 | | 53h |
| 1,000,000 | 618,550 | 8 | 49,484 | | | | | | | | 618,550 | | 53i |

[4] Exclusive of $794,131, investments other than street railways.
[5] Exclusive of $12,500, investments other than street railways.
[6] The stocks of some of the lessor companies are represented by trust certificates issued on behalf of the Union Traction Company, but this is not an additional liability to that of the stocks held.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | PENNSYLVANIA—Continued. | | | | | | | |
| 53j | Philadelphia | Thirteenth and Fifteenth Streets Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 17.59 | ..... | $1,000,000 | $1,000,000 |
| 53k | .....do | Ridge Avenue Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 14.97 | ..... | 750,000 | 750,000 |
| 53l | .....do | Catharine and Bainbridge Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 5.19 | ..... | 400,000 | 400,000 |
| 53m | .....do | Huntingdon Street Connecting Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | .17 | ..... | 6,000 | 6,000 |
| 53n | .....do | Twenty-second Street and Allegheny Avenue Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 14.59 | ..... | 1,000,000 | 1,000,000 |
| 53o | .....do | Walnut Street Connecting Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 1.40 | ..... | 50,000 | 50,000 |
| 53p | .....do | Ridge Avenue Connecting Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | .16 | ..... | 6,000 | 6,000 |
| 53q | .....do | Electric Traction Co. (lessor) | July 1,1901 | June 30,1902 | 26.07 | ..... | 8,750,000 | 8,750,000 |
| 53r | .....do | Frankford and Southwark Philadelphia City Passenger R. R. Co. (lessor). | July 1,1901 | June 30,1902 | 46.63 | ..... | 1,875,000 | 1,875,000 |
| 53s | .....do | Citizens Passenger Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 11.50 | ..... | 500,000 | 500,000 |
| 53t | .....do | Second and Third Streets Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 31.09 | ..... | 1,060,200 | 1,060,200 |
| 53u | .....do | Peoples Traction Co. (lessor) | July 1,1901 | June 30,1902 | ..... | ..... | 6,000,000 | 6,000,000 |
| 53v | .....do | Peoples Passenger Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 3.58 | ..... | 2,250,000 | 2,075,000 |
| 53w | .....do | Green and Coates Streets Philadelphia Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 6.07 | ..... | 500,000 | 500,000 |
| 53x | .....do | Germantown Passenger Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 42.97 | ..... | 1,500,000 | 1,500,000 |
| 53y | .....do | Northern Passenger Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 1.30 | ..... | 30,000 | 15,000 |
| 53z | .....do | Centennial Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | .79 | ..... | 15,000 | 15,000 |
| 53aa | .....do | Philadelphia, Cheltenham and Jenkintown Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 23.99 | ..... | 60,000 | 60,000 |
| 53bb | .....do | Girard Avenue Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 2.36 | ..... | 9,000 | 5,000 |
| 53cc | .....do | Chelten Avenue Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 6.17 | ..... | 39,000 | 39,000 |
| 53dd | .....do | Hillcrest Avenue Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 2.04 | ..... | 10,000 | 10,000 |
| 53ee | .....do | Citizens East End Street Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | .79 | ..... | 15,000 | 15,000 |
| 53ff | .....do | Citizens Clearfield and Cambria Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | .33 | ..... | 6,000 | 6,000 |
| 53gg | .....do | Hestonville, Mantua and Fairmount Passenger R. R. Co. (lessor). | July 1,1901 | June 30,1902 | 15.92 | ..... | 2,500,000 | 2,500,000 |
| 53hh | .....do | Fairmount Park and Haddington Passenger Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 5.69 | ..... | 300,000 | 300,000 |
| 53ii | .....do | Lehigh Avenue Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 5.37 | ..... | 1,000,000 | 1,000,000 |
| 53jj | .....do | Frankford and Fairmount Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 4.17 | ..... | 7,800 | 7,800 |
| 53kk | .....do | Germantown and Fairmount Park Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 5.07 | ..... | 8,000 | 8,000 |
| 53ll | .....do | Empire Passenger Rwy. Co. (lessor) | July 1,1901 | June 30,1902 | 12.25 | ..... | 600,000 | 600,000 |
| 54 | .....do | Southwestern Street Rwy. Co | July 1,1901 | June 30,1902 | 15.98 | 15.98 | 400,000 | 400,000 |
| 55 | Philadelphia, Bristol | Philadelphia, Bristol and Trenton Street Rwy. Co. | July 1,1901 | June 30,1902 | 11.81 | 11.81 | 250,000 | 250,000 |
| 56 | Philadelphia | Philadelphia and West Chester Traction Co. | July 1,1901 | June 30,1902 | 20.75 | 24.08 | 1,000,000 | 565,175 |
| 56a | | Ardmore and Llanerch Street Rwy. Co. (lessor). | Jan. 1,1902 | June 30,1902 | 3.33 | ..... | 200,000 | 200,000 |
| 57 | Philadelphia | Holmesburg, Tacony and Frankford Electric Rwy. Co. | July 1,1901 | June 30,1902 | 17.29 | 18.29 | 800,000 | 750,000 |
| 58 | .....do | Fairmount Park Transportation Co. | Nov. 1,1901 | Oct. 31,1902 | 8.80 | 8.80 | 2,000,000 | 2,000,000 |
| 59 | Philadelphia, Media and Swarthmore. | Delaware County and Philadelphia Electric Rwy. Co. | July 1,1901 | June 30,1902 | 10.00 | 15.00 | 500,000 | 300,000 |
| 59a | | Media, Glen Riddle and Rockdale Electric Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 5.00 | ..... | 6,000 | 6,000 |
| 60 | Phoenixville, Spring City | Montgomery and Chester Electric Rwy. Co. | July 1,1901 | June 30,1902 | 5.57 | 5.57 | 100,000 | 55,000 |
| 61 | Pittsburg, Allegheny, Bellevue, Millvale, Etna, Sharpsburg, McKees Rocks, Coraopolis, Carnegie, Wilkinsburg, Braddock, Wilmerding, Pitcairn, Duquesne, Homestead. | Pittsburg Rwys. Co. (The Philadelphia Co.). | Jan. 1,1902 | Dec. 31,1902 | 48.51 | 410.01 | 5,000,000 | 5,000,000 |
| 61a | | United Traction Co. of Pittsburg (lessor). | Jan. 1,1902 | Dec. 31,1902 | 118.97 | ..... | [4]20,647,350 | [4]20,647,350 |
| 61b | | Pittsburg and Birmingham Traction Co. (lessor). | Jan. 1,1902 | Dec. 31,1902 | 33.80 | ..... | 3,000,000 | 3,000,000 |
| 61c | | Mt. Oliver Incline Rwy. Co. (lessor) | Jan. 1,1902 | Dec. 31,1902 | 1.78 | ..... | 100,000 | 100,000 |
| 61d | | Pittsburg Incline Plane Co. (lessor) | Jan. 1,1902 | Dec. 31,1902 | 1.00 | ..... | 150,000 | 150,000 |
| 61e | | Pittsburg and Charleroi Street Rwy. Co. (lessor).[7] | Jan. 1,1902 | Dec. 31,1902 | 4.60 | ..... | ..... | ..... |
| 61f | | East McKeesport Street Rwy. Co. (lessor). | Jan. 1,1902 | Dec. 31,1902 | 7.10 | ..... | 250,000 | 250,000 |
| 61g | | New Homestead Street Rwy. Co. (lessor). | July 1,1901 | June 30,1902 | 1.00 | ..... | 10,000 | 10,000 |
| 61h | | Consolidated Traction Co. (lessor) | Jan. 1,1902 | Dec. 31,1902 | 77.40 | ..... | [5]30,000,000 | [5]26,790,600 |
| 61i | | Allegheny Traction Co. (lessor) | Jan. 1,1902 | Dec. 31,1902 | 18.50 | ..... | 500,000 | 500,000 |
| 61j | | Citizens Traction Co. (lessor) | Jan. 1,1902 | Dec. 31,1902 | 30.48 | ..... | 3,000,000 | 3,000,000 |
| 61k | | Monongahela Street Rwy. Co. (lessor.) | Jan. 1,1902 | Dec. 31,1902 | 55.58 | ..... | 7,000,000 | 7,000,000 |
| 61l | | Suburban Rapid Transit Street Rwy. Co. (lessor). | Jan. 1,1902 | Dec. 31,1902 | 11.29 | ..... | 1,400,000 | 1,400,000 |

[1] Exclusive of $11,163,044, investments other than street railways.
[2] Includes investments other than street railways.
[3] Exclusive of $563,190, investments other than street railways.
[4] Includes $647,350, stock of Federal Street and Pleasant Valley Passenger Railway Company, which has been absorbed by United Traction Company.
[5] Includes $33,218, dividends on common stock of Federal Street and Pleasant Valley Passenger Railway Company.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $1,000,000 | $1,000,000 | 24 | $240,000 | | | | | $590,000 | $590,000 | 4½,5,6,7 | $1,590,000 | | 53j |
| 750,000 | 750,000 | 24 | 180,000 | | | | | | | | 750,000 | | 53k |
| 400,000 | 400,000 | 6 | 24,000 | | | | | 150,000 | 150,000 | 5 | 550,000 | | 53l |
| 6,000 | 6,000 | 6 | 360 | | | | | | | | 6,000 | | 53m |
| 1,000,000 | 1,000,000 | 6 | 60,000 | | | | | | | | 1,000,000 | | 53n |
| 50,000 | 50,000 | 6 | 3,000 | | | | | | | | 50,000 | | 53o |
| 6,000 | 6,000 | 6 | 360 | | | | | | | | 6,000 | | 53p |
| 8,750,000 | 8,750,000 | 6½ | 581,438 | | | | | 282,100 | 282,100 | 3½,7 | 9,032,100 | | 53q |
| 1,875,000 | 1,875,000 | 34 | 637,500 | | | | | | | | 1,875,000 | [7]$171,164 | 53r |
| 500,000 | 500,000 | 28 | 140,000 | | | | | | | | 500,000 | | 53s |
| 1,060,200 | 1,060,200 | 23 | 243,846 | | | | | | | | 1,060,200 | | 53t |
| 6,000,000 | 6,000,000 | 10 | 608,000 | | | | | | | | 6,000,000 | | 53u |
| 1,500,000 | 1,500,000 | 11¼ | 168,000 | $750,000 | $575,000 | 11¼ | $64,319 | 1,075,000 | 1,075,000 | 5,7 | 3,150,000 | | 53v |
| 500,000 | 500,000 | 12 | 60,000 | | | | | | | | 500,000 | | 53w |
| 1,500,000 | 1,500,000 | 10½ | 157,500 | | | | | 67,500 | 67,500 | 5 | 1,567,500 | | 53x |
| 30,300 | 15,000 | 6 | 900 | | | | | | | | 15,000 | | 53y |
| 15,000 | 15,000 | 6 | 900 | | | | | | | | 15,000 | | 53z |
| 60,000 | 60,000 | 6 | 3,600 | | | | | | | | 60,000 | | 53aa |
| 9,000 | 5,000 | 6 | 300 | | | | | | | | 5,000 | | 53bb |
| 39,000 | 39,000 | 6 | 2,340 | | | | | | | | 39,000 | | 53cc |
| 10,000 | 10,000 | 6 | 600 | | | | | | | | 10,000 | | 53dd |
| 15,000 | 15,000 | 6 | 900 | | | | | | | | 15,000 | | 53ee |
| 6,000 | 6,000 | 6 | 360 | | | | | | | | 6,000 | | 53ff |
| 1,966,100 | 1,966,100 | 4 | 78,644 | 533,900 | 533,900 | 6 | 32,034 | 1,325,000 | 1,250,000 | 3½,5 | 3,750,000 | | 53gg |
| 300,000 | 300,000 | 6 | 18,000 | | | | | | | | 300,000 | | 53hh |
| 1,000,000 | 1,000,000 | | | | | | | | | | 1,000,000 | | 53ii |
| 7,800 | 7,800 | | | | | | | | | | 7,800 | | 53jj |
| 8,000 | 8,000 | | | | | | | | | | 8,000 | | 53kk |
| 600,000 | 600,000 | 6 | 36,000 | | | | | 200,000 | 200,000 | 3½ | 800,000 | | 53ll |
| 400,000 | 400,000 | | | | | | | 400,000 | 400,000 | 4,5 | 800,000 | 50,063 | 54 |
| 250,000 | 250,000 | | | | | | | 250,000 | 36,000 | 5 | 286,000 | 24,217 | 55 |
| 1,000,000 | 565,175 | | | | | | | 400,000 | 390,000 | 5 | [2]955,175 | 46,033 | 56 |
| 200,000 | 200,000 | | | | | | | | | | 200,000 | 60,060 | 56a |
| 800,000 | 750,000 | 2½ | 21,000 | | | | | 400,000 | 400,000 | 5 | 1,150,000 | 66,512 | 57 |
| 2,000,000 | 2,000,000 | | | | | | | 750,000 | 668,000 | 5 | 2,668,000 | [3]239,183 | 58 |
| 500,000 | 300,000 | 7 | 21,000 | | | | | 64,000 | 64,000 | 6 | 364,000 | 36,400 | 59 |
| 6,000 | 6,000 | | | | | | | | | | 6,000 | 1,200 | 59a |
| 100,000 | 55,000 | | | | | | | 100,000 | 100,000 | 5 | 155,000 | 27,828 | 60 |
| 2,500,000 | 2,500,000 | | | 2,500,000 | 2,500,000 | | | 5,479,000 | 4,579,000 | 5 | 9,579,000 | | 61 |
| [4]17,647,350 | [4]17,647,350 | ½,5 | [5]118,218 | 3,000,000 | 3,000,000 | 5 | 150,000 | 10,000,000 | 10,000,000 | 5 | 30,647,350 | | 61a |
| 3,000,000 | 3,000,000 | 3½ | 112,500 | | | | | 2,825,000 | 2,825,000 | 5 | 5,825,000 | | 61b |
| 100,000 | 100,000 | 6 | 6,000 | | | | | 55,000 | 44,500 | 6 | 144,500 | | 61c |
| 150,000 | 150,000 | 10 | 15,000 | | | | | 250,000 | 250,000 | 6 | 400,000 | | 61d |
| | | | | | | | | | | | | [6]203,916 | 61e |
| 250,000 | 250,000 | | | | | | | 250,000 | 250,000 | 5 | 500,000 | | 61f |
| 10,000 | 10,000 | | | | | | | | | | 10,000 | | 61g |
| [8]15,000,000 | [8]14,790,600 | 1 | [9]161,470 | 15,000,000 | 12,000,000 | 6 | 720,000 | [10]3,938,000 | [10]3,938,000 | 5,6 | 30,728,600 | | 61h |
| 500,000 | 500,000 | ½ | 2,500 | | | | | 750,000 | 750,000 | 5 | 1,250,000 | | 61i |
| 3,000,000 | 3,000,000 | 6 | 180,000 | | | | | 1,500,000 | 1,500,000 | 5 | 4,500,000 | | 61j |
| 7,000,000 | 7,000,000 | | | | | | | 4,400,000 | 4,400,000 | 5 | 11,400,000 | | 61k |
| 1,400,000 | 1,400,000 | 2,3 | 36,000 | | | | | 200,000 | 200,000 | 6 | 1,600,000 | | 61l |

[6] Exclusive of $13,915,050, investments other than street railways.
[7] Road under construction; no statistics shown other than the small amount of track now operated.
[8] Includes $441,600, stock of controlled companies outstanding.
[9] Includes $17,980, dividends on stock of controlled companies outstanding.
[10] Funded debt of controlled companies.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | PENNSYLVANIA—Continued. | | | | | | | |
| 62 | Pittsburg | St. Clair Incline Plane Co | July 1, 1901 | June 30, 1902 | .80 | .80 | $150,000 | $150,000 |
| 63 | .....do | Duquesne Incline Plane Co | Jan. 1, 1901 | Dec. 31, 1901 | .30 | .30 | 60,000 | 50,000 |
| 64 | .....do | Pittsburg and Castle Shannon R. R. Co | July 1, 1901 | June 30, 1902 | .52 | .52 | | |
| 65 | .....do | Monongahela Incline Plane Co | July 1, 1901 | June 30, 1902 | .48 | .48 | 250,000 | 250,000 |
| 66 | .....do | Penn Incline Plane Co | Jan. 1, 1902 | Dec. 31, 1902 | .34 | .34 | 250,000 | 250,000 |
| 67 | Pittsburg, McKeesport, Irwin, Greensburg. | Pittsburg, McKeesport and Greensburg Rwy. Co. | July 1, 1901 | June 30, 1902 | [1]21.36 | [1]21.36 | 1,500,000 | 1,000,000 |
| 68 | Pittsburg, Wilmerding, Duquesne, McKeesport, Mt. Pleasant, Scottdale, Connellsville, Dunbar, Uniontown. | Pittsburg, McKeesport and Connellsville Rwy. Co. | July 1, 1901 | June 30, 1902 | 56.00 | 56.00 | 3,500,000 | 1,650,000 |
| 69 | Pottstown | Pottstown Passenger Rwy. Co | July 1, 1901 | June 30, 1902 | 6.11 | 6.11 | 100,000 | 87,500 |
| 70 | .....do | Ringing Rocks Electric Rwy. Co | July 1, 1901 | June 30, 1902 | 3.80 | 3.80 | 100,000 | 50,000 |
| 71 | Pottsville, Minersville, St. Clair, Schuylkill Haven, Port Carbon. | Pottsville Union Traction Co. (including lessors). | July 1, 1901 | June 30, 1902 | 30.60 | 42.80 | 1,250,000 | 1,250,000 |
| 72 | Punxsutawney, Walston | Punxsutawney Street Passenger Rwy. Co. | June 1, 1901 | May 31, 1902 | 12.13 | 12.13 | 160,000 | 160,000 |
| 73 | Reading, Womelsdorf, Mohrsville, Stony Creek, Temple. | United Traction Co | July 1, 1901 | June 30, 1902 | ..... | 63.44 | 400,000 | 400,000 |
| 73a | ..... | Reading Traction Co. (lessor) | July 1, 1901 | June 30, 1902 | ([2]) | ..... | 1,000,000 | 1,000,000 |
| 73b | ..... | East Reading Electric Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | 7.95 | ..... | 100,000 | 100,000 |
| 73c | ..... | Reading City Passenger Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | 25.84 | ..... | 400,000 | 350,000 |
| 73d | ..... | Reading and Temple Electric Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | 6.41 | ..... | 75,000 | 73,700 |
| 73e | ..... | Reading and Womelsdorf Electric Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | 14.80 | ..... | 500,000 | 500,000 |
| 73f | ..... | Reading and Southwestern Street Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | 8.44 | ..... | 130,000 | 130,000 |
| 74 | Sayre, Athens; Waverly (N. Y.). | Waverly, Sayre and Athens Traction Co | July 1, 1901 | June 30, 1902 | [4]9.11 | [4]9.11 | 200,000 | 200,000 |
| 75 | Reading, Neversink Mountain | Neversink Mountain R. R. Co | July 1, 1901 | June 30, 1902 | 8.70 | 8.70 | 100,000 | 100,000 |
| 76 | Reading, Mt. Penn | Mt. Penn Gravity Rwy. Co | July 1, 1901 | June 30, 1902 | 8.00 | 8.00 | 100,000 | 100,000 |
| 77 | Scranton, Dunmore, Throop, Dickson, Olyphant, Blakely, Archbald, Jermyn, Mayfield, Carbondale. | Scranton Rwy. Co | July 1, 1901 | June 30, 1902 | 38.10 | 76.68 | 6,000,000 | 3,000,000 |
| 77a | ..... | Carbondale Rwy. Co. (lessor) | July 1, 1901 | June 30, 1902 | 15.25 | ..... | 450,000 | 450,000 |
| 77b | ..... | Lackawanna Valley Traction Co. (lessor). | July 1, 1901 | June 30, 1902 | 3.75 | ..... | 400,000 | 400,000 |
| 77c | ..... | Pittston and Scranton Street Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | 2.03 | ..... | 75,000 | 60,000 |
| 77d | ..... | Scranton and Carbondale Traction Co. (lessor). | July 1, 1901 | June 30, 1902 | 5.55 | ..... | 500,000 | 500,000 |
| 77e | ..... | Scranton and Pittston Traction Co. (lessor). | July 1, 1901 | June 30, 1902 | 12.00 | ..... | 1,050,000 | 976,125 |
| 78 | Shamokin, Ashland, Centralia, Mt. Carmel. | Shamokin and Mt. Carmel Electric Rwy. Co. | July 1, 1901 | June 30, 1902 | 16.25 | 20.35 | 700,000 | 700,000 |
| 78a | ..... | Ashland and Centralia Electric Rwy. Co. (lessor). | July 1, 1901 | June 30, 1902 | 3.10 | ..... | 60,000 | 60,000 |
| 79 | Shamokin, Edgewood | Shamokin and Edgewood Electric Rwy. Co. | July 1, 1901 | June 30, 1902 | 3.20 | 3.20 | 60,000 | 60,000 |
| 80 | Stroudsburg | Stroudsburg Passenger Co | July 1, 1901 | June 30, 1902 | 2.75 | 2.75 | 51,200 | 51,200 |
| 81 | Sunbury, Northumberland | Sunbury and Northumberland Electric Rwy. Co. | July 1, 1901 | June 30, 1902 | 3.90 | 3.90 | 125,000 | 125,000 |
| 82 | Tamaqua, Lansford, Summit Hill. | Tamaqua and Lansford Street Rwy. Co | July 1, 1901 | June 30, 1902 | 14.63 | 14.63 | 200,000 | 200,000 |
| 83 | Tarentum, Natrona, New Kensington. | Tarentum Traction Passenger Rwy. Co | July 1, 1901 | June 30, 1902 | 6.61 | 6.61 | 100,000 | 50,000 |
| 84 | Titusville, Pleasantville, Hydetown. | Titusville Electric Traction Co | July 1, 1901 | June 30, 1902 | 12.00 | 12.00 | 100,000 | 100,000 |
| 85 | Warren, Sheffield | Warren Street Rwy. Co | July 1, 1901 | June 30, 1902 | 20.00 | 20.00 | 200,000 | 150,000 |
| 86 | Washington | Washington Electric Street Rwy. Co | June 3, 1901 | June 2, 1902 | 3.26 | 3.26 | 125,000 | 125,000 |
| 87 | West Chester | West Chester Street Rwy. Co | July 1, 1901 | June 30, 1902 | 5.86 | 5.86 | 60,000 | 60,000 |
| 88 | Wilkesbarre, Pittston, Plymouth, Nanticoke, Ashley, Edwardsville, Duryea. | Wilkesbarre and Wyoming Valley Traction Co. | July 1, 1901 | June 30, 1902 | 66.58 | 66.58 | [7]5,043,050 | [7]5,043,050 |
| 89 | Wilkesbarre, Luzerne, Dallas, Harveys Lake. | Wilkesbarre, Dallas and Harveys Lake Rwy. Co. | July 1, 1901 | June 30, 1902 | 13.00 | 16.50 | 200,000 | 200,000 |
| 90 | Williamsport | Vallamont Traction Co | July 1, 1901 | June 30, 1902 | 3.47 | 3.70 | 200,000 | 101,700 |
| 91 | .....do | South Side Passenger Rwy. Co | July 1, 1901 | June 30, 1902 | 1.85 | 2.03 | 25,000 | 25,000 |
| 92 | .....do | Williamsport Passenger Rwy. Co | July 1, 1901 | June 30, 1902 | 8.64 | 8.64 | 600,000 | 338,550 |
| 93 | .....do | East End Passenger Rwy. Co | July 1, 1901 | June 30, 1902 | 2.45 | 2.45 | 50,000 | 18,000 |
| 94 | Windsor, Dallastown, Red Lion | Red Lion and Windsor Street Rwy. Co | July 1, 1901 | June 30, 1902 | 2.00 | 2.00 | 24,000 | 800 |
| 95 | Yardley, Morrisville; Trenton (N. J.). | Yardley, Morrisville and Trenton Street Rwy. Co. | July 1, 1901 | June 30, 1902 | 5.99 | 5.99 | 100,000 | 100,000 |
| 96 | York, Dover | York and Dover Electric Rwy. Co | July 1, 1901 | June 30, 1902 | 7.93 | 9.06 | 50,000 | 50,000 |
| 97 | York, Spry, Dallastown | York and Dallastown Electric Rwy. Co | July 1, 1901 | June 30, 1902 | 6.28 | 7.42 | 60,000 | 60,000 |
| 98 | York, North York | York Street Rwy. Co | July 1, 1901 | June 30, 1902 | 12.25 | 12.25 | 200,000 | 200,000 |
| | RHODE ISLAND. | | | | | | | |
| | Total for state | | | | [10]342.92 | [10]350.35 | 16,475,000 | 16,375,000 |
| 1 | Narragansett Pier, Wickford, East Greenwich. | Sea View R. R. Co | July 1, 1901 | June 30, 1902 | 18.88 | 18.88 | 700,000 | 700,000 |
| | Newport; Fall River (Mass.) | Newport and Fall River Street Rwy. Co.[12] | | | | | | |
| 2 | Pawtucket, Central Falls | Pawtucket Street Rwy. Co | Apr. 1, 1901 | Mar. 31, 1902 | 19.71 | 19.71 | 500,000 | 500,000 |
| 3 | Providence, Pawtucket | Union R. R. Co | Apr. 1, 1901 | Mar. 31, 1902 | 137.05 | 141.08 | 9,000,000 | 9,000,000 |

[1] Road not completed; entire trackage will be 30 miles.
[2] This company leases the trackage of the 4 subsidiary companies, and subleases to the United Traction Company.
[3] Exclusive of $565,433, investments other than street railways.
[4] Includes 3 miles in New York.
[5] Exclusive of $1,119,215, investments other than street railways.
[6] Includes investments other than street railways.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $150,000 | $150,000 | | | | | | | $75,000 | $75,000 | 6 | $225,000 | $281,250 | 62 |
| 60,000 | 50,000 | 12 | $6,000 | | | | | | | | 50,000 | 166,667 | 63 |
| | | | | | | | | 165,000 | 165,000 | 6 | 165,000 | 317,308 | 64 |
| 250,000 | 250,000 | 8 | 20,000 | | | | | | | | 250,000 | 520,833 | 65 |
| 250,000 | 250,000 | | | | | | | | | | 250,000 | 735,294 | 66 |
| 1,500,000 | 1,000,000 | | | | | | | 1,500,000 | 1,000,000 | 5 | 2,000,000 | 93,633 | 67 |
| 3,500,000 | 1,650,000 | | | | | | | 3,820,000 | 1,649,500 | 5,6 | 3,299,500 | 58,920 | 68 |
| 100,000 | 87,500 | | | | | | | 75,000 | 75,000 | 5 | 162,500 | 26,596 | 69 |
| 100,000 | 50,000 | | | | | | | 60,000 | 45,000 | 5,6 | 95,000 | 25,000 | 70 |
| 1,250,000 | 1,250,000 | | | | | | | 1,250,000 | 750,000 | 5,6 | 2,000,000 | 65,359 | 71 |
| 160,000 | 160,000 | | | | | | | | | | 160,000 | 13,190 | 72 |
| 400,000 | 400,000 | 5 | 20,000 | | | | | 150,000 | 149,900 | 5 | 549,900 | | 73 |
| 1,000,000 | 1,000,000 | 3 | 30,000 | | | | | 500,000 | 445,000 | 6 | 1,445,000 | | 73a |
| 100,000 | 100,000 | 7½ | 7,600 | | | | | 25,000 | 25,000 | 5 | 125,000 | | 73b |
| 400,000 | 350,000 | 12 | 42,000 | | | | | 115,000 | 115,000 | 5 | 465,000 | | 73c |
| 75,000 | 73,700 | 7 | 5,019 | | | | | 75,000 | 73,700 | 5 | 147,100 | [8]50,865 | 73d |
| 500,000 | 500,000 | | | | | | | 400,000 | 330,000 | 5 | 830,000 | | 73e |
| 130,000 | 130,000 | 12 | 15,600 | | | | | 100,000 | 100,000 | 5 | 230,000 | | 73f |
| 200,000 | 200,000 | 2 | 4,000 | | | | | 150,000 | 150,000 | 6 | 350,000 | 38,419 | 74 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 4 | 200,000 | 22,989 | 75 |
| 100,000 | 100,000 | | | | | | | 100,000 | 99,400 | 4 | 199,400 | 24,925 | 76 |
| 6,000,000 | 3,000,000 | | | | | | | 4,000,000 | 2,850,000 | 5,6 | 5,850,000 | | 77 |
| 450,000 | 450,000 | | | | | | | 450,000 | 450,000 | 5,6 | 900,000 | | 77a |
| 460,000 | 400,000 | | | | | | | 200,000 | 115,000 | 6 | 515,000 | [8]106,774 | 77b |
| 75,000 | 60,000 | | | | | | | | | | 60,000 | | 77c |
| 500,000 | 500,000 | | | | | | | 150,000 | 150,000 | 6 | 650,000 | | 77d |
| 1,050,000 | 976,125 | | | | | | | 525,000 | 355,500 | 6 | 1,331,625 | | 77e |
| 500,000 | 500,000 | | | $200,000 | $200,000 | | | 500,000 | 300,000 | 4 | [6]1,000,000 | 57,881 | 78 |
| 60,000 | 60,000 | | | | | | | 60,000 | 60,000 | 4 | [6]120,000 | | 78a |
| 60,000 | 60,000 | | | | | | | 60,000 | 60,000 | 5 | 120,000 | 37,500 | 79 |
| 51,200 | 51,200 | | | | | | | 15,000 | 7,000 | 4 | 58,200 | 21,164 | 80 |
| 125,000 | 125,000 | | | | | | | 125,000 | | | 125,000 | 32,051 | 81 |
| 200,000 | 200,000 | 5 | 10,000 | | | | | 200,000 | 200,000 | 5 | 400,000 | 27,341 | 82 |
| 100,000 | 50,000 | | | | | | | 100,000 | 100,000 | 6 | 150,000 | 22,693 | 83 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 6 | 200,000 | 16,667 | 84 |
| 200,000 | 150,000 | | | | | | | 200,000 | 200,000 | 5 | 350,000 | 17,500 | 85 |
| 125,000 | 125,000 | | | | | | | 125,000 | 125,000 | 5 | 250,000 | 76,687 | 86 |
| 60,000 | 60,000 | | | | | | | 34,000 | 34,000 | 5 | 94,000 | 16,041 | 87 |
| 5,043,050 | 5,043,050 | 4½ | 212,500 | | | | | [8]2,195,000 | [8]2,187,000 | 5 | 7,230,050 | 108,592 | 88 |
| 200,000 | 200,000 | 4 | 8,000 | | | | | 150,000 | 150,000 | 5 | 350,000 | 26,923 | 89 |
| 200,000 | 101,700 | | | | | | | 100,000 | 100,000 | 6 | 201,700 | 58,127 | 90 |
| 25,000 | 25,000 | | | | | | | 25,000 | 25,000 | 6 | 50,000 | 27,027 | 91 |
| 600,000 | 338,550 | | | | | | | 169,000 | 169,000 | 6 | 507,550 | 58,744 | 92 |
| 50,000 | 18,000 | | | | | | | 50,000 | 18,000 | 6 | 36,000 | 14,694 | 93 |
| 24,000 | 800 | | | | | | | | | | [9]800 | 400 | 94 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 6 | 200,000 | 33,389 | 95 |
| 50,000 | 50,000 | 2 | 1,000 | | | | | | | | 50,000 | 6,305 | 96 |
| 60,000 | 60,000 | 11 | 6,600 | | | | | | | | 60,000 | 9,554 | 97 |
| 200,000 | 200,000 | 3 | 6,000 | | | | | 150,000 | 150,000 | 5 | 350,000 | 28,571 | 98 |
| 16,475,000 | 16,375,000 | | 760,000 | | | | | 9,900,000 | 6,221,200 | | [11]22,596,200 | 75,979 | |
| 700,000 | 700,000 | | | | | | | 1,000,000 | 500,000 | 5 | 1,200,000 | 63,559 | 1 |
| 500,000 | 500,000 | 8 | 40,000 | | | | | | | | 500,000 | 25,368 | 2 |
| 9,000,000 | 9,000,000 | 8 | 720,000 | | | | | 3,000,000 | 25,000 | 4 | 9,025,000 | 65,852 | 3 |

[7] Includes $43,050, stocks of subsidiary companies outstanding.
[8] Includes $370,000, bonds of subsidiary companies outstanding.
[9] Road under construction.
[10] Exclusive of 11.72 miles lying outside of state, but including 25.74 miles in state owned by outside companies. Total owned by companies in state, 328.90 miles; total operated, 336.33 miles.
[11] Capital reported for 7 companies only, representing 297.40 miles of track owned. (See note 2, page 270.)
[12] See Old Colony Railway Company, Massachusetts.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | RHODE ISLAND—Continued. | | | | | | | |
| 4 | Providence, Bristol, East Greenwich and vicinity. | Rhode Island Suburban Rwy. Co | Apr. 1,1901 | Mar. 31,1902 | 68.07 | 68.07 | $5,000,000 | $5,000,000 |
| 5 | Providence, Scituate, Foster | Providence and Danielson Rwy. Co | July 1,1901 | June 30,1902 | 25.12 | 28.52 | 800,000 | 800,000 |
| 6 | Providence, Warren, Bristol | New York, New Haven and Hartford R. R. Co. (Providence, Warren and Bristol Branch.) | July 1,1901 | June 30,1902 | [1]31.50 | [1]31.50 | [2] | [2] |
| 7 | Westerly | Pawcatuck Valley Street Rwy. Co | July 1,1901 | June 30,1902 | 6.23 | 6.23 | 75,000 | 75,000 |
| 8 | Woonsocket, Manville; Blackstone (Mass.). | Woonsocket Street Rwy. Co | Oct. 1,1901 | Sept. 30,1902 | [3]22.34 | [3]22.34 | 400,000 | 300,000 |
| | SOUTH CAROLINA. | | | | | | | |
| | Total for state | | | | 76.98 | 77.98 | 2,891,400 | 2,589,400 |
| 1 | Augusta (Ga.), North Augusta. | North Augusta Electric and Improvement Co. | Jan. 1,1901 | Dec. 31,1901 | 2.38 | 3.38 | [5]16,400 | [5]16,400 |
| 2 | Charleston | Charleston Consolidated Railway, Gas and Electric Co. | Mar. 1,1901 | Feb. 28,1902 | 34.42 | 34.42 | 1,500,000 | 1,500,000 |
| 3 | Columbia | Columbia Electric Street Railway, Light and Power Co. | Jan. 1,1902 | Dec. 31,1902 | 14.00 | 14.00 | 350,000 | 350,000 |
| 4 | Greenville | Greenville Traction Co | Jan. 1,1902 | Dec. 31,1902 | 7.00 | 7.00 | 500,000 | 306,000 |
| 5 | Orangeburg | Orangeburg City Street Rwy. Co | July 1,1901 | June 30,1902 | 1.87 | 1.87 | 25,000 | 10,000 |
| 6 | Rock Hill | Rock Hill Water Supply, Electric Light and Street Rwy. Co. | Jan. 1,1902 | Dec. 31,1902 | 1.31 | 1.31 | 100,000 | 7,000 |
| 7 | Spartanburg, Glendale, Clifton | Spartanburg Railway, Gas and Electric Co. | Jan. 1,1902 | Dec. 31,1902 | 16.00 | 16.00 | 400,000 | 400,000 |
| | SOUTH DAKOTA. | | | | | | | |
| | Total for state | | | | 2.00 | 2.00 | 100,000 | 100,000 |
| 1 | Rapid City | Rapid City Street Rwy. Co.[7] | | | 2.00 | 2.00 | 100,000 | 100,000 |
| | TENNESSEE. | | | | | | | |
| | Total for state | | | | [8]248.53 | [8]248.53 | 13,725,000 | 8,160,400 |
| 1 | Bristol | Bristol Belt Line Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | [10]4.25 | [10]4.25 | 100,000 | 100,000 |
| 2 | Chattanooga and vicinity | Chattanooga Electric Rwy. Co | July 1,1901 | June 30,1902 | 38.38 | 38.38 | 645,000 | 645,000 |
| 3 | Chattanooga | Rapid Transit Co. of Chattanooga[11] | July 1,1901 | June 30,1902 | [12]38.50 | [12]38.50 | 5,000,000 | 500,000 |
| 4 | Clarksville | Electric Street Railway of Clarksville | Jan. 1,1902 | Dec. 31,1902 | 5.50 | 5.50 | 20,000 | 20,000 |
| 5 | Jackson | Jackson and Suburban Street R. R. Co | Jan. 1,1902 | Dec. 31,1902 | 3.19 | 3.19 | 100,000 | 65,400 |
| 6 | Knoxville and vicinity | Knoxville Traction Co | July 1,1901 | June 30,1902 | 26.00 | 26.00 | 860,000 | 860,000 |
| 7 | Memphis | Memphis Street Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 71.88 | 71.88 | 500,000 | 500,000 |
| 8 | Nashville and vicinity | Nashville Rwy. Co | July 1,1901 | June 30,1902 | 66.50 | 66.50 | 6,500,000 | 5,470,000 |
| | TEXAS. | | | | | | | |
| | Total for state | | | | [14]303.28 | [14]309.36 | 9,831,000 | 9,150,900 |
| 1 | Austin | Austin Electric Rwy. Co | July 1,1901 | June 30,1902 | 13.38 | 13.38 | 200,000 | 200,000 |
| 2 | Bonham | Bonham Electric Railway, Light and Power Co. | July 1,1901 | June 30,1902 | 2.63 | 2.63 | 25,000 | 25,000 |
| 3 | Dallas | Dallas Consolidated Electric Street Rwy. Co. | July 1,1901 | June 30,1902 | 34.64 | 34.64 | 2,000,000 | 2,000,000 |
| 4 | Dallas and vicinity | Rapid Transit Rwy. Co | July 1,1901 | June 30,1902 | 11.66 | 13.00 | 100,000 | 48,000 |
| 5 | Denison, Sherman | Denison and Sherman Rwy. Co | July 1,1901 | June 30,1902 | 16.20 | 16.20 | 200,000 | 100,000 |
| 6 | El Paso | El Paso Electric Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | [15]13.48 | [15]13.48 | 750,000 | 750,000 |
| 7 | Fort Worth, Dallas | Northern Texas Traction Co | July 1,1901 | June 30,1902 | 61.70 | 61.70 | 2,500,000 | 2,000,000 |
| 8 | Galveston | Galveston Street Rwy. Co | July 1,1901 | June 30,1902 | 35.86 | 35.86 | 800,000 | 800,000 |
| 9 | Houston | Houston Electric Co | July 1,1901 | June 30,1902 | 37.20 | 37.20 | 2,500,000 | 2,500,000 |
| 10 | Laredo | Laredo Electric and Rwy. Co | July 1,1901 | June 30,1902 | 2.85 | 2.85 | 60,000 | 60,000 |
| 11 | Longview | Longview and Junction Rwy. Co | July 1,1901 | June 30,1902 | .63 | .63 | 5,000 | 5,000 |
| 12 | Paris | Paris Transit Co | Dec. 4,1901 | June 30,1902 | 5.00 | 5.00 | 100,000 | 100,000 |
| 13 | San Antonio | San Antonio Traction Co | July 1,1901 | June 30,1902 | 45.51 | 45.51 | 200,000 | 200,000 |
| 14 | Seguin | Seguin Street Rwy. Co | July 1,1901 | June 30,1902 | 1.50 | 1.50 | 6,000 | 6,000 |
| 15 | Waco | Citizens Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 16.29 | 16.29 | 350,000 | 350,000 |
| 16 | Waxahachie | Waxahachie Street Rwy. Co | July 1,1901 | June 30,1902 | 2.71 | 4.74 | 25,000 | 1,000 |
| 17 | ....do | Lake Park Street R. R. Co | July 1,1901 | June 30,1902 | 2.03 | 4.74 | 10,000 | 5,900 |
| | UTAH. | | | | | | | |
| | Total for state | | | | 89.04 | 89.04 | 4,150,000 | 3,110,000 |
| 1 | Ogden | Ogden Rapid Transit Co | July 1,1901 | June 30,1902 | 11.00 | 11.00 | 100,000 | 60,000 |
| 2 | Salt Lake City, Murray, Fort Douglas. | Consolidated Railway and Power Co | Oct. 1,1901 | Sept. 30,1902 | 75.00 | 75.00 | 4,000,000 | 3,000,000 |
| 3 | Salt Lake City and vicinity | Salt Lake and Utah Valley Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 3.04 | 3.04 | 50,000 | 50,000 |

[1] Includes 8.5 miles in Massachusetts.
[2] Capitalization included in that of steam railroad.
[3] Includes 3.22 miles in Massachusetts.
[4] Includes electric-light plant and other investments.
[5] Cash investment.
[6] Includes electric-light plant.
[7] This company failed to make a report; the information given was obtained from street-railway journals and directories.
[8] Exclusive of 5.67 miles lying outside of state. Total owned and operated by companies in state, 254.20 miles.
[9] Exclusive of $582,015, investments other than street railways and electric-light plants owned.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $5,000,000 | $5,000,000 | | | | | | | $5,000,000 | $4,816,200 | 4 | $9,816,200 | $144,207 | 4 |
| 800,000 | 800,000 | | | | | | | 600,000 | 600,000 | 5 | 1,400,000 | 55,732 | 5 |
| | | | | | | | | (9) | (9) | | | | 6 |
| 75,000 | 75,000 | | | | | | | 100,000 | 100,000 | 5 | 175,000 | 28,090 | 7 |
| 400,000 | 300,000 | | | | | | | 200,000 | 180,000 | 5 | 480,000 | 21,486 | 8 |
| 2,791,400 | 2,489,400 | | $720 | $100,000 | $100,000 | | | 3,650,000 | 3,336,000 | | [15]5,925,400 | 76,973 | |
| 16,400 | 16,400 | | | | | | | | | | 16,400 | 6,891 | 1 |
| 1,500,000 | 1,500,000 | | | | | | | 2,500,000 | 2,500,000 | 5 | [14]4,000,000 | 116,212 | 2 |
| 250,000 | 250,000 | | | 100,000 | 100,000 | | | 500,000 | 320,000 | 5 | [6]670,000 | 47,857 | 3 |
| 500,000 | 306,000 | | | | | | | 250,000 | 186,000 | 5 | 492,000 | 70,286 | 4 |
| 25,000 | 10,000 | 7 | 720 | | | | | | | | 10,000 | 5,348 | 5 |
| 100,000 | 7,000 | | | | | | | | | | 7,000 | 5,344 | 6 |
| 400,000 | 400,000 | | | | | | | 400,000 | 330,000 | 5 | [4]730,000 | 45,625 | 7 |
| 100,000 | 100,000 | | | | | | | | | | 100,000 | 50,000 | |
| 100,000 | 100,000 | | | | | | | | | | 100,000 | 50,000 | 1 |
| 18,725,000 | 8,160,400 | | | | | | | 14,240,000 | 8,686,400 | | 16,846,800 | [7]63,984 | |
| 100,000 | 100,000 | | | | | | | 75,000 | 75,000 | 5 | 175,000 | 41,176 | 1 |
| 645,000 | 645,000 | | | | | | | 625,000 | 625,000 | 5 | 1,270,000 | 33,090 | 2 |
| 5,000,000 | 500,000 | | | | | | | 770,000 | 770,000 | 5,6 | [12]1,270,000 | 32,987 | 3 |
| 20,000 | 20,000 | | | | | | | 30,000 | 28,900 | 6 | [13]48,900 | 8,891 | 4 |
| 100,000 | 65,400 | | | | | | | 90,000 | 67,500 | 6 | [6]132,900 | 41,661 | 5 |
| 860,000 | 860,000 | | | | | | | 1,150,000 | 1,150,000 | 5 | [4]2,010,000 | 77,308 | 6 |
| 500,000 | 500,000 | | | | | | | 5,000,000 | 3,910,000 | 5,6 | 4,410,000 | 61,352 | 7 |
| 6,500,000 | 5,470,000 | | | | | | | 6,500,000 | 2,060,000 | 5,6 | 7,530,000 | 113,233 | 8 |
| 8,431,000 | 7,750,900 | | 14,500 | 1,400,000 | 1,400,000 | | $8,100 | 6,530,000 | 3,952,900 | | [4]13,103,800 | 43,208 | |
| 200,000 | 200,000 | | | | | | | | | | 200,000 | 14,948 | 1 |
| 25,000 | 25,000 | 8 | 2,000 | | | | | 10,000 | 10,000 | 6 | 35,000 | 13,308 | 2 |
| 1,500,000 | 1,500,000 | | | 500,000 | 500,000 | 1 | 8,100 | 2,000,000 | 685,000 | 5 | 2,685,000 | 77,512 | 3 |
| 100,000 | 48,000 | | | | | | | 100,000 | 48,000 | 5 | 96,000 | 8,233 | 4 |
| 200,000 | 100,000 | | | | | | | 500,000 | 300,000 | 5 | 400,000 | 24,691 | 5 |
| 750,000 | 750,000 | 1 | 12,500 | | | | | | | | 750,000 | 55,638 | 6 |
| 2,500,000 | 2,000,000 | | | | | | | 50,000 | 50,000 | 5 | 2,050,000 | 33,225 | 7 |
| 400,000 | 400,000 | | | 400,000 | 400,000 | | | 600,000 | 600,000 | 5 | 1,400,000 | 39,041 | 8 |
| 2,000,000 | 2,000,000 | | | 500,000 | 500,000 | | | 2,500,000 | 1,500,000 | 5 | 4,000,000 | 107,527 | 9 |
| 60,000 | 60,000 | | | | | | | | | | 60,000 | 21,053 | 10 |
| 5,000 | 5,000 | | | | | | | | | | 5,000 | 7,937 | 11 |
| 100,000 | 100,000 | | | | | | | 100,000 | 100,000 | 5 | 200,000 | 40,000 | 12 |
| 200,000 | 200,000 | | | | | | | 300,000 | 300,000 | | 500,000 | 10,987 | 13 |
| 6,000 | 6,000 | | | | | | | | | | 6,000 | 4,000 | 14 |
| 350,000 | 350,000 | | | | | | | 350,000 | 350,000 | 6 | [4]700,000 | 42,971 | 15 |
| 25,000 | 1,000 | | | | | | | 10,000 | 4,000 | 5 | 5,000 | 1,845 | 16 |
| 10,000 | 5,900 | | | | | | | 10,000 | 5,900 | 5 | 11,800 | 5,813 | 17 |
| 4,150,000 | 3,110,000 | | 3,000 | | | | | 3,100,000 | 2,800,000 | | [13]5,910,000 | 66,375 | |
| 100,000 | 60,000 | 5 | 3,000 | | | | | 100,000 | 100,000 | 5 | 160,000 | 14,545 | 1 |
| 4,000,000 | 3,000,000 | | | | | | | 3,000,000 | 2,700,000 | 5 | [13]5,700,000 | 76,000 | 2 |
| 50,000 | 50,000 | | | | | | | | | | 50,000 | 16,447 | 3 |

[10] Includes .67 mile in Virginia.
[11] Report furnished by United Railways, Light and Water Company of Philadelphia, Pa., and includes North Side Consolidated Street Railway, Chattanooga and Lookout Mountain Railway, and Lookout Point Incline Company.
[12] Includes 5 miles in Georgia.
[13] Includes investments other than street railways.
[14] Exclusive of 1.15 miles lying outside of state, but including 1.16 miles in state owned by outside companies. Total owned by companies in state, 303.27 miles; total operated, 309.35 miles.
[15] Includes 1.15 miles in Mexico.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL.

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | **VERMONT.** | | | | | | | |
| | Total for state | | | | [1] 86.05 | [1] 86.05 | $1,885,000 | $1,835,100 |
| 1 | Barre, Montpelier | Barre and Montpelier Power and Traction Co | July 1,1901 | June 30,1902 | 8.82 | 8.82 | 150,000 | 130,000 |
| 2 | Bellows Falls, Saxtons Falls | Bellows Falls and Saxtons River R. R. Co | Aug. 1,1901 | July 31,1902 | 6.54 | 6.54 | 100,000 | 100,000 |
| 3 | Brattleboro, West Brattleboro | Brattleboro Street Rwy. Co | Aug. 1,1901 | July 31,1902 | 5.00 | 5.00 | 75,000 | 55,500 |
| 4 | Burlington, Winooski | Burlington Traction Co | July 1,1901 | June 30,1902 | 11.22 | 11.22 | 200,000 | 200,000 |
| 5 | Rutland | Rutland Street Rwy. Co | July 1,1901 | June 30,1902 | 10.45 | 10.45 | 700,000 | 700,000 |
| 6 | St. Albans, Swanton | St. Albans Street Rwy. Co | July 1,1901 | June 30,1902 | 13.50 | 13.50 | 200,000 | 200,000 |
| 7 | Springfield; Charlestown (N. H.) | Springfield Electric Rwy. Co | July 1,1901 | June 30,1902 | [2] 9.11 | [2] 9.11 | 75,000 | 64,600 |
| 8 | Waterbury, Stowe | Mt. Mansfield Electric Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 11.25 | 11.25 | 300,000 | 300,000 |
| 9 | Winooski, Essex Junction | Military Post Street Rwy. Co | July 1,1901 | June 30,1902 | 4.66 | 4.66 | 85,000 | 85,000 |
| | **VIRGINIA.** | | | | | | | |
| | Total for state | | | | [3] 358.17 | [3] 378.30 | 30,359,000 | 21,812,000 |
| 1 | Charlottesville | Charlottesville City and Suburban Rwy. Co | Sept. 1,1901 | Aug. 31,1902 | 3.70 | 3.70 | 100,000 | 68,000 |
| 2 | Danville | Danville Railway and Electric Co | Nov. 1,1901 | Oct. 31,1902 | 5.30 | 5.30 | 100,000 | 100,000 |
| 3 | Falls Church, Arlington; Washington, (D. C.). | Washington, Arlington, and Falls Church Rwy. Co. | Jan. 1,1901 | Dec. 31,1901 | 11.92 | 11.92 | 100,000 | 100,000 |
| 4 | Lynchburg and vicinity | Lynchburg Traction and Light Co | May 1,1901 | Apr. 30,1902 | 15.50 | 15.50 | 1,000,000 | 750,000 |
| 5 | Newport News | Citizens Railway, Light and Power Co | June 1,1901 | May 31,1902 | 4.87 | 9.53 | 200,000 | 200,000 |
| 6 | Newport News, Hampton, Phoebus, Old Point Comfort. | Newport News and Old Point Railway and Electric Co. | June 1,1901 | May 31,1902 | 35.00 | 39.87 | 1,800,000 | 1,800,000 |
| 7 | Norfolk and vicinity | Bay Shore Terminal Co | May 23,1902 | June 30,1902 | 12.00 | 12.00 | 500,000 | 100,000 |
| 8 | Norfolk, Sewall Point | Norfolk and Atlantic Terminal Co | June 1,1901 | May 31,1902 | 19.04 | 19.04 | 5,000,000 | 500,000 |
| 9 | Norfolk, Berkley | Berkley Street Rwy. Co | Mar. 1,1902 | June 1,1902 | 14.01 | 14.27 | 100,000 | 100,000 |
| 10 | Norfolk, Berkley, Ocean View | Norfolk Railway and Light Co | June 1,1901 | May 31,1902 | 53.03 | 53.03 | 1,650,000 | 1,650,000 |
| 11 | Petersburg | Southside Railway and Development Co | July 1901 | June 30,1902 | [10] 12.85 | [10] 12.85 | (11) | (11) |
| 12 | Petersburg, Manchester | Richmond and Petersburg Electric Rwy. Co | Feb. 20,1902 | June 30,1902 | 21.93 | 23.08 | 1,000,000 | 600,000 |
| 13 | Portsmouth | Old Dominion Rwy. Co | July 1901 | June 30,1902 | 12.21 | 12.21 | [12] 2,400,000 | [12] 535,000 |
| 14 | ....do | Norfolk, Portsmouth and Newport News Co | June 1,1901 | May 31,1902 | 8.63 | 8.63 | 550,000 | 550,000 |
| 15 | Radford | Radford Water Power Co | Oct. 26,1901 | Oct. 25,1902 | 2.98 | 2.98 | 50,000 | 50,000 |
| 16 | Richmond | Richmond Traction Co | July 1,1901 | June 30,1902 | 18.75 | 23.71 | (11) | (11) |
| 17 | ....do | Richmond Passenger and Power Co | July 1,1901 | June 30,1902 | 25.21 | 27.33 | (11) | (11) |
| 18 | Richmond, Petersburg, Manchester. | Virginia Passenger and Power Co. (including West Hampton Park Rwy. Co.). | Apr. 1,1902 | Mar. 31,1903 | 37.60 | 37.60 | [15] 15,000,000 | [15] 14,000,000 |
| 19 | Roanoke, Salem, Vinton | Roanoke Railway and Electric Co | Jan. 1,1902 | Dec. 31,1902 | 19.04 | 19.04 | 200,000 | 200,000 |
| 20 | Tazewell | Tazewell Street Rwy. Co | Mar. 1,1901 | Feb. 28,1902 | 2.00 | 2.00 | 9,000 | 9,000 |
| 21 | Washington (D. C.), Alexandria, Mt. Vernon. | Washington, Alexandria and Mt. Vernon Rwy. Co. | June 1,1901 | May 31,1902 | [16] 23.73 | [16] 25.84 | 1,000,000 | 500,000 |
| | **WASHINGTON.** | | | | | | | |
| | Total for state | | | | 228.93 | 228.93 | 11,115,000 | 11,036,400 |
| 1 | Everett, Lowell | Everett Railway and Electric Co | Sept. 1,1901 | Aug. 31,1902 | 9.65 | 9.65 | 200,000 | 200,000 |
| 2 | Olympia, Turnwater | Olympia Light and Power Co | Oct. 1,1901 | Sept. 30,1902 | 4.18 | 4.18 | 165,000 | 163,200 |
| 3 | Seattle, Ballard, Georgetown, South Park. | Seattle Electric Co | July 1,1901 | June 30,1902 | 83.19 | 83.19 | 8,000,000 | 8,000,000 |
| 4 | Seattle, Renton | Seattle and Renton Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 13.25 | 13.25 | 100,000 | 100,000 |
| 5 | Spokane | Washington Water Power Co | Jan. 1,1901 | Dec. 31,1901 | 33.40 | 33.40 | 400,000 | 400,000 |
| 6 | ....do | Spokane and Montrose Motor R. R. Co | Jan. 1,1902 | Dec. 31,1902 | 3.15 | 3.15 | 50,000 | 50,000 |
| 7 | Tacoma, Spanaway | Tacoma Railway and Power Co | July 1,1901 | June 30,1902 | 69.11 | 69.11 | 2,000,000 | 2,000,000 |
| 8 | Whatcom, Fairhaven, Silver Beach. | Northern Railway and Improvement Co | Sept. 1,1901 | Aug. 31,1902 | 13.00 | 13.00 | 200,000 | 123,200 |
| | **WEST VIRGINIA.** | | | | | | | |
| | Total for state | | | | [18] 93.08 | [18] 93.64 | 4,924,500 | 4,273,600 |
| 1 | Charleston | Kanawha Valley Traction Co | Jan. 1,1902 | Dec. 31,1902 | 7.14 | 7.14 | 100,000 | 5,000 |
| 2 | Chester; East Liverpool (Ohio) | East Liverpool and Rock Springs Street Rwy. Co. | Jan. 1,1902 | Dec. 31,1902 | [19] 3.26 | [19] 3.82 | 150,000 | 150,000 |
| 3 | Fairmont, Clarksburg | Fairmont and Clarksburg Electric Rwy. Co. | Dec. 1,1901 | Nov. 30,1902 | 7.10 | 7.10 | 1,000,000 | 750,000 |
| 4 | Huntington; Ashland (Ky.); Hanging Rock (Ohio). | Camden Interstate Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | [20] 30.23 | [20] 30.23 | 1,000,000 | 1,000,000 |
| 5 | Parkersburg, Williamstown; Marietta (Ohio). | Parkersburg, Marietta and Interurban Rwy. Co. | Jan. 1,1902 | Dec. 31,1902 | [21] 29.50 | [21] 29.50 | 500,000 | 440,000 |
| 6 | Wellsburg | Wheeling and Wellsburg Rwy. Co | Dec. 1,1901 | Nov. 30,1902 | 1.77 | 1.77 | [22] 24,500 | [22] 24,500 |
| 7 | Wheeling, Moundsville; Martins Ferry, Bridgeport, Bellaire, Steubenville, Mingo (Ohio). | Wheeling Traction Co | Jan. 1,1902 | Oct. 31,1902 | [23] 44.75 | [23] 44.75 | 2,000,000 | 1,836,300 |
| 8 | Wheeling, Elm Grove | Wheeling and Elm Grove Rwy. Co | Dec. 1,1901 | Nov. 30,1902 | 16.25 | 16.25 | 150,000 | 67,800 |

[1] Exclusive of 2.75 miles lying outside of state, but including 8.25 miles in state owned by outside companies. Total owned and operated by companies in state, 80.55 miles.
[2] Includes 2.75 miles in New Hampshire.
[3] Exclusive of 1.80 miles lying outside of state, but including .67 mile in state owned by outside companies. Total owned by companies in state, 359.30 miles, including 3.51 miles leased from steam railroad (see note 10); total operated, 379.43 miles.
[4] Exclusive of $3,284,535, investments other than street railways and electric-light plants owned.
[5] Includes electric-light plant and other investments.
[6] Exclusive of $548,884, investments other than street railways and electric-light plants owned.
[7] Exclusive of $324,583, investments other than street railways and electric-light plants owned.
[8] 2½ per cent on $600,000 for first dividend, and 2½ per cent on $725,000 for second dividend.
[9] Includes investments other than street railways.
[10] Includes 3.51 miles leased from steam railroad.
[11] Included in report of Virginia Passenger and Power Company. (See note 15.)

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $1,870,000 | $1,820,100 | ..... | $8,000 | $15,000 | $15,000 | ..... | $750 | $1,450,000 | $931,600 | ..... | $2,766,700 | $34,348 | |
| 150,000 | 130,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | 230,000 | 26,077 | 1 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 75,000 | 75,000 | 5 | 175,000 | 26,758 | 2 |
| 75,000 | 55,500 | ..... | ..... | ..... | ..... | ..... | ..... | 25,000 | 25,000 | 5 | 80,500 | 16,100 | 3 |
| 200,000 | 200,000 | 4 | 8,000 | ..... | ..... | ..... | ..... | 150,000 | 125,000 | 6 | 325,000 | 28,966 | 4 |
| 700,000 | 700,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 81,600 | 5 | 781,600 | 74,794 | 5 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 150,000 | 5 | 350,000 | 25,926 | 6 |
| 75,000 | 64,600 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | 164,600 | 18,068 | 7 |
| 300,080 | 300,000 | ..... | ..... | ..... | ..... | ..... | ..... | 225,000 | 200,000 | 5 | 500,000 | 44,444 | 8 |
| 70,000 | 70,000 | ..... | ..... | 15,000 | 15,000 | 5 | 750 | 75,000 | 75,000 | 6 | 160,000 | 34,335 | 9 |
| 24,634,000 | 17,087,000 | ..... | 270 | 5,725,000 | 4,725,000 | ..... | 33,125 | 30,167,000 | 25,891,314 | ..... | 47,703,314 | [4]124,845 | |
| 100,000 | 68,000 | ..... | ..... | ..... | ..... | ..... | ..... | 150,000 | 133,314 | 6 | [5]201,314 | 54,409 | 1 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 235,000 | 235,000 | 5 | 335,000 | 63,208 | 2 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 6 | 200,000 | 16,779 | 3 |
| 1,000,000 | 750,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 750,000 | 5 | [5]1,500,000 | [6]61,362 | 4 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 800,000 | 751,000 | 5 | [5]951,000 | [7]128,628 | 5 |
| 1,075,000 | 1,075,000 | ..... | ..... | 725,000 | 725,000 | [8]5 | 33,125 | 4,000,000 | 2,400,000 | 5 | [5]4,200,000 | 120,000 | 6 |
| 500,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 125,000 | 5 | 225,000 | 18,750 | 7 |
| 5,000,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 5 | [9]1,000,000 | 52,521 | 8 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 5 | 600,000 | 42,827 | 9 |
| 1,650,000 | 1,650,000 | ..... | ..... | ..... | ..... | ..... | ..... | 4,000,000 | 3,235,000 | 5,6 | [5]4,885,000 | 92,118 | 10 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [11] | [11] | ..... | ..... | ..... | 11 |
| 1,000,000 | 600,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 500,000 | 5 | 1,100,000 | 50,160 | 12 |
| 2,000,000 | 535,000 | ..... | ..... | ..... | ..... | ..... | ..... | [12]542,000 | [12]542,000 | 5,6 | 1,077,000 | 88,206 | 13 |
| 550,000 | 550,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 5 | 1,050,000 | [13]40,900 | 14 |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | [14]150,000 | 50,336 | 15 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [11] | [11] | ..... | ..... | ..... | 16 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [11] | [11] | ..... | ..... | ..... | 17 |
| 10,000,000 | 10,000,000 | ..... | ..... | 5,000,000 | 4,000,000 | ..... | ..... | [15]15,000,000 | [15]14,330,000 | ..... | [15]28,330,000 | 311,661 | 18 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 490,000 | 490,000 | 4,5 | [14]690,000 | 36,239 | 19 |
| 9,000 | 9,000 | 3 | 270 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9,000 | 4,500 | 20 |
| 1,000,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 750,000 | 700,000 | 5 | 1,200,000 | 50,569 | 21 |
| 8,115,000 | 8,036,400 | ..... | 37,528 | 3,000,000 | 3,000,000 | ..... | 112,500 | 9,290,000 | 7,747,813 | ..... | [5]18,784,213 | 82,052 | |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 500,000 | 5 | [14]700,000 | 72,539 | 1 |
| 165,000 | 163,200 | 4 | 6,528 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [14]163,200 | 39,043 | 2 |
| 5,000,000 | 5,000,000 | ..... | ..... | 3,000,000 | 3,000,000 | 6 | [17]112,500 | 5,500,000 | 5,018,000 | 5 | [14]13,018,000 | 156,485 | 3 |
| 100,000 | 100,000 | 11 | 11,000 | ..... | ..... | ..... | ..... | 150,000 | 65,000 | 5 | 165,000 | 12,453 | 4 |
| 400,000 | 400,000 | 5 | 20,000 | ..... | ..... | ..... | ..... | 800,000 | 600,000 | 5 | [9]1,000,000 | 29,940 | 5 |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | 40,000 | 40,000 | 6 | 90,000 | 28,571 | 6 |
| 2,000,000 | 2,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,700,000 | 1,424,813 | 5,6 | 3,424,813 | 49,556 | 7 |
| 200,000 | 123,200 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | [5]223,200 | 17,169 | 8 |
| 4,924,500 | 4,273,600 | ..... | 22,000 | ..... | ..... | ..... | ..... | 7,600,000 | 5,308,400 | ..... | [5]9,582,000 | 68,443 | |
| 100,000 | 5,000 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 200,000 | 5 | 205,000 | 28,711 | 1 |
| 150,000 | 150,000 | ..... | ..... | ..... | ..... | ..... | ..... | 150,000 | ..... | 6 | 150,000 | 46,012 | 2 |
| 1,000,000 | 750,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 200,000 | 5 | [14]950,000 | 133,803 | 3 |
| 1,000,000 | 1,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,500,000 | 1,440,000 | 5,6 | [5]2,440,000 | 80,715 | 4 |
| 500,000 | 440,000 | 5 | 22,000 | ..... | ..... | ..... | ..... | 1,000,000 | 600,000 | 5,6 | [14]1,040,000 | 35,254 | 5 |
| 24,500 | 24,500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 24,500 | 13,842 | 6 |
| 2,000,000 | 1,836,300 | ..... | ..... | ..... | ..... | ..... | ..... | 2,500,000 | 2,154,000 | 5,6 | 3,990,300 | 89,169 | 7 |
| 150,000 | 67,800 | ..... | ..... | ..... | ..... | ..... | ..... | 1,250,000 | 714,400 | 5 | [9]782,200 | 48,135 | 8 |

[12] Not reported; obtained from street-railway journals and directories.
[13] Exclusive of $697,031, investments other than street railways.
[14] Includes electric-light plant.
[15] Issued after combination with Southside Railway and Development Company, Richmond Traction Company, and Richmond Passenger and Power Company, subsequent to period covered by Census report; total trackage owned 90.90 miles; also includes electric-light plants.
[16] Includes 1.80 miles in District of Columbia.
[17] Total amount of stock shown was not issued until near the end of the year reported.
[18] Exclusive of 46.92 miles lying outside of state. Total owned by companies in state, 140 miles; total operated, 140.56 miles.
[19] Includes .89 mile in Ohio.
[20] Includes 6.87 miles in Kentucky, and 9.16 miles in Ohio.
[21] Includes 8 miles in Ohio.
[22] Cash investment.
[23] Includes 22 miles in Ohio.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | WISCONSIN. | | | | | | | |
| | Total for state | | | | [1] 446.14 | [1] 446.14 | $23,344,000 | $15,178,600 |
| 1 | Appleton, Kaukauna, Menasha, Neenah. | Wisconsin Traction, Light, Heat and Power Co. | Jan. 1,1902 | Sept. 30,1902 | 19.25 | 19.25 | 1,000,000 | 1,000,000 |
| 2 | Ashland | Ashland Light, Power and Street Rwy. Co. | Jan. 1,1901 | Dec. 31,1901 | 7.68 | 7.68 | 84,000 | 84,000 |
| 3 | Eau Claire, Chippewa Falls | Chippewa Valley Electric R. R. Co | Jan. 1,1902 | Dec. 31,1902 | 22.57 | 22.57 | 200,000 | 200,000 |
| 4 | Fond du Lac | Fond du Lac Street Rwy. and Light Co | Jan. 1,1901 | Dec. 31,1901 | 6.27 | 6.27 | 150,000 | 150,000 |
| 5 | Green Bay and vicinity | Fox River Electric Railway and Power Co. | Jan. 1,1902 | Dec. 31,1902 | 17.13 | 17.13 | 150,000 | 145,500 |
| 6 | Janesville | Janesville Street Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 7.41 | 7.41 | 50,000 | 50,000 |
| 7 | La Crosse | La Crosse City Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 14.44 | 14.44 | 200,000 | 200,000 |
| 8 | La Crosse, Onalaska | La Crosse and Onalaska Street Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 2.67 | 2.67 | 50,000 | 38,000 |
| 9 | Madison, Blooming Grove | Madison Traction Co | Sept. 1,1901 | Aug. 31,1902 | 8.50 | 8.50 | 200,000 | 200,000 |
| 10 | Manitowoc, Two Rivers | Manitowoc and Northern Traction Co | May 1,1902 | Dec. 31,1902 | 8.63 | 8.63 | 100,000 | 100,000 |
| 11 | Marinette | Marinette Gas, Electric Light and Street Rwy. Co. | May 1,1901 | Apr. 30,1902 | 5.40 | 5.40 | 115,000 | 115,000 |
| 12 | Merrill | Merrill Railway and Lighting Co | Jan. 1,1902 | Dec. 31,1902 | 1.55 | 1.55 | 20,000 | 20,000 |
| 13 | Milwaukee, Whitefish Bay, Wauwatosa. | Milwaukee Electric Railway and Light Co. | Jan. 1,1902 | Dec. 31,1902 | 145.50 | 145.50 | 19,500,000 | 11,500,000 |
| 14 | Milwaukee, Racine, Waukesha, Pewaukee. | Milwaukee Light, Heat and Traction Co | Jan. 1,1902 | Dec. 31,1902 | 92.56 | 92.56 | 500,000 | 500,000 |
| 15 | Oshkosh, Neenah | Winnebago Traction Co | Apr. 1,1901 | Mar. 31,1902 | 32.00 | 32.00 | 650,000 | 650,000 |
| 16 | Sheboygan, Sheboygan Falls | Sheboygan Light, Power and Rwy. Co | July 1,1901 | June 30,1902 | 20.00 | 20.00 | 300,000 | 151,100 |
| 17 | Waupaca | Waupaca Electric Light and Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 4.94 | 4.94 | 75,000 | 75,000 |
| | HAWAII. | | | | | | | |
| | Total for territory | | | | 28.70 | 28.70 | 1,775,000 | 1,450,000 |
| 1 | Honolulu | Hawaiian Tramways Co | July 1,1901 | June 30,1902 | 12.00 | 12.00 | 650,000 | 325,000 |
| 2 | do | Honolulu Rapid Transit and Land Co | Jan. 1,1902 | Dec. 31,1902 | 14.20 | 14.20 | 1,000,000 | 1,000,000 |
| 3 | do | Pacific Heights Electric Rwy. Co. (Ltd) | Jan. 4,1902 | Dec. 31,1902 | 2.50 | 2.50 | 125,000 | 125,000 |
| | PORTO RICO. | | | | | | | |
| | Total | | | | 12.56 | 12.56 | 648,000 | 571,340 |
| 1 | Mayaguez | Tramway Stock Co | July 1,1901 | June 30,1902 | 3.13 | 3.13 | 48,000 | 27,840 |
| 2 | San Juan, Rio Piedras | San Juan Light and Transit Co | Jan. 1,1902 | Dec. 31,1902 | 9.43 | 9.43 | 600,000 | 543,500 |

[1] Includes 29.64 miles in state owned by outside companies. Total owned and operated by companies in state, 416.50 miles.
[2] Exclusive of $708,756, investments other than street railways and electric-light plants owned.
[3] Includes electric-light plant.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $18,719,000 | $10,553,700 | ..... | $30,563 | $4,625,000 | $4,624,900 | ..... | $270,000 | $28,281,400 | $13,058,350 | ..... | $28,236,950 | [2]$66,094 | |
| 1,000,000 | 1,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 750,000 | 5 | [3]1,750,000 | 90,909 | 1 |
| 84,000 | 84,000 | ..... | ..... | ..... | ..... | ..... | ..... | 78,400 | 59,300 | 5 | [3]143,300 | 18,659 | 2 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 200,000 | 6 | 400,000 | 17,723 | 3 |
| 150,000 | 150,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 250,000 | 5 | [4]400,000 | 63,796 | 4 |
| 25,000 | 20,600 | ..... | ..... | 125,000 | 124,900 | ..... | ..... | 150,000 | 120,050 | 5 | 265,550 | 15,502 | 5 |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | 75,000 | 75,000 | 6 | 125,000 | 16,869 | 6 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 136,000 | 136,000 | 6 | 336,000 | 23,269 | 7 |
| 50,000 | 38,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 38,000 | 14,232 | 8 |
| 200,000 | 200,000 | 5 | 10,000 | ..... | ..... | ..... | ..... | 300,000 | 200,000 | 5 | 400,000 | 47,059 | 9 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | 200,000 | 23,175 | 10 |
| 115,000 | 115,000 | ..... | ..... | ..... | ..... | ..... | ..... | 50,000 | 30,000 | 6 | [3]145,000 | 26,852 | 11 |
| 20,000 | 20,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | ..... | ..... | [3]20,000 | 12,903 | 12 |
| 15,000,000 | 7,000,000 | ..... | ..... | 4,500,000 | 4,500,000 | 6 | 270,000 | 19,500,000 | 8,000,000 | 5 | [4]19,500,000 | 134,021 | 13 |
| 500,000 | 500,000 | 4 | 20,563 | ..... | ..... | ..... | ..... | 5,000,000 | 2,249,000 | 5 | [3]2,749,000 | 29,700 | 14 |
| 650,000 | 650,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 555,000 | 5 | [5]1,205,000 | 37,656 | 15 |
| 300,000 | 151,100 | ..... | ..... | ..... | ..... | ..... | ..... | 300,000 | 300,000 | 5 | [3]451,100 | 22,555 | 16 |
| 75,000 | 75,000 | ..... | ..... | ..... | ..... | ..... | ..... | 42,000 | 34,000 | 6 | [3]109,000 | 22,065 | 17 |
| 1,566,000 | 1,241,000 | ..... | 19,500 | 209,000 | 209,000 | ..... | ..... | 1,275,000 | 610,000 | ..... | [5]2,060,000 | 71,777 | |
| 650,000 | 325,000 | 6 | 19,500 | ..... | ..... | ..... | ..... | 150,000 | 150,000 | 6 | [5]475,000 | 39,583 | 1 |
| 791,000 | 791,000 | ..... | ..... | 209,000 | 209,000 | ..... | ..... | 1,000,000 | 460,000 | 6 | 1,460,000 | 102,817 | 2 |
| 125,000 | 125,000 | ..... | ..... | ..... | ..... | ..... | ..... | 125,000 | ..... | ..... | 125,000 | 50,000 | 3 |
| 648,000 | 571,340 | ..... | ..... | ..... | ..... | ..... | ..... | 611,800 | 553,800 | ..... | [5]1,125,140 | 89,581 | |
| 48,000 | 27,840 | ..... | ..... | ..... | ..... | ..... | ..... | 11,800 | 11,800 | 5 | 39,640 | 12,665 | 1 |
| 600,000 | 543,500 | ..... | ..... | ..... | ..... | ..... | ..... | 600,000 | 542,000 | 6 | [5]1,085,500 | 115,111 | 2 |

[4] Includes electric-light plant and other investments.
[5] Includes investments other than street railways.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turnouts. | Overhead trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— | |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | UNITED STATES | [2]22,589.47 | 16,651.58 | 5,030.36 | 907.53 | [4]21,302.57 | | [5]1,027.80 | 259.10 | 19,038.33 | 3,551.14 | 560.92 | 1,549.73 | 3,424.96 | 377.11 |
| | ALABAMA. | | | | | | | | | | | | | | |
| | Total for state | 204.72 | 167.70 | 21.75 | 15.27 | 173.69 | | 28.00 | 3.03 | 204.72 | | | 4.50 | 70.08 | .25 |
| 1 | Anniston Electric and Gas | 10.00 | 9.50 | | .50 | 10.00 | | | | 10.00 | | | .50 | 1.50 | |
| 2 | Birmingham Railway, Light and Power. | 110.00 | 85.00 | 14.00 | 11.00 | 89.00 | Steam | 21.00 | | 110.00 | | | 3.00 | 60.00 | |
| 3 | Decatur Street Railway | 3.03 | 3.00 | | .03 | | | | 3.03 | 3.03 | | | | | |
| 4 | Alabama City, Gadsden and Attalla | 6.70 | 6.20 | | .50 | 6.70 | | | | 6.70 | | | | 3.00 | |
| 5 | Huntsville Railway, Light and Power. | 4.62 | 4.50 | | .12 | 4.62 | | | | 4.62 | | | | | .25 |
| 6 | Mobile Light and Railroad | 37.50 | 30.75 | 5.75 | 1.00 | 37.50 | | | | 37.50 | | | | 1.33 | |
| 7 | Montgomery Street Railway | 20.00 | 17.00 | 2.00 | 1.00 | 20.00 | | | | 20.00 | | | | | |
| 8 | Selma Street and Suburban | 5.87 | 5.75 | | .12 | 5.87 | | | | 5.87 | | | 1.00 | .25 | |
| 9 | Tuscaloosa Belt Railway | 7.00 | 6.00 | | 1.00 | | Steam | 7.00 | | 7.00 | | | | 4.00 | |
| | ARIZONA. | | | | | | | | | | | | | | |
| | Total for territory | 17.10 | 15.00 | 1.00 | 1.10 | 12.00 | | | 5.10 | 17.10 | | | | 3.00 | |
| 1 | Phoenix Railway | 12.00 | 10.00 | 1.00 | 1.00 | 12.00 | | | | 12.00 | | | | 3.00 | |
| 2 | Tucson Street Railway | 5.10 | 5.00 | | .10 | | | | 5.10 | 5.10 | | | | | |
| | ARKANSAS. | | | | | | | | | | | | | | |
| | Total for state | 52.49 | 38.01 | 11.99 | 2.49 | 49.83 | | | 2.66 | 52.49 | | | 2.75 | .50 | .60 |
| 1 | Citizens Electric | 3.17 | [3] 2.90 | | .27 | 3.17 | | | | 3.17 | | | | .50 | .60 |
| 2 | Fort Smith Traction | 7.57 | 6.00 | 1.51 | .06 | 7.57 | | | | 7.57 | | | 1.00 | | |
| 3 | Fort Smith and Van Buren | 1.36 | 1.36 | | | 1.36 | | | | 1.36 | | | | | |
| 4 | Hot Springs Street Railroad | 9.28 | 4.82 | 4.34 | .12 | 9.28 | | | | 9.28 | | | | | |
| 5 | Little Rock Traction and Electric | 20.70 | 13.43 | 6.14 | 1.13 | 20.70 | | | | 20.70 | | | | | |
| 6 | Citizens Light and Transit | 7.75 | 7.00 | | .75 | 7.75 | | | | 7.75 | | | 1.75 | | |
| 7 | Texarkana Railway | 2.66 | 2.50 | | .16 | | | | 2.66 | 2.66 | | | | | |
| | CALIFORNIA. | | | | | | | | | | | | | | |
| | Total for state | 829.10 | 551.40 | 268.55 | 9.15 | 665.96 | | [9]120.77 | 42.37 | 829.10 | | 10.85 | 83.59 | 74.48 | 1.98 |
| 1 | Bakersfield and Kern Electric | 2.15 | 2.08 | | .07 | 2.15 | | | | 2.15 | | | | | |
| 2 | Fresno, Belmont and Yosemite | 2.50 | 2.50 | | | | | | 2.50 | 2.50 | | | | | |
| 3 | Fresno Railroad | 2.90 | 2.75 | | .15 | | | | 2.90 | 2.90 | | | | 1.75 | |
| 4 | Nevada County Traction | 5.10 | 5.00 | | .10 | 5.10 | | | | 5.10 | | | | 3.84 | |
| 5 | Los Angeles Electric Incline | .14 | .07 | .07 | | | Cable | .14 | | .14 | | | .14 | | |
| 6 | Los Angeles Railway | 94.82 | 55.82 | 39.00 | | 94.82 | | | | 94.82 | | 4.89 | 4.67 | | |
| 7 | Los Angeles and Pasadena | 31.86 | 20.46 | 9.85 | 1.55 | 31.86 | | | | 31.86 | | 1.88 | .29 | 1.64 | |
| 8 | Los Angeles Pacific Railway | 87.48 | 62.57 | 24.91 | | 66.46 | Steam | 15.07 | 5.95 | 87.48 | | | 51.00 | 55.80 | |
| 9 | Pacific Electric Railway | 11.34 | 8.52 | 2.82 | | 2.18 | Cable | [10]9.16 | | 11.34 | | .34 | | | |
| 10 | Los Angeles Traction | 26.00 | 26.00 | | | 26.00 | | | | 26.00 | | 3.00 | .35 | | |
| 11 | Marysville and Yuba City | 4.23 | 4.13 | | .10 | | | | 4.23 | 4.23 | | | | | |
| 12 | Monrovia Street Railway | 1.50 | 1.50 | | | | | | 1.50 | 1.50 | | | | | |
| 13 | Monterey and Pacific Grove | 4.15 | 4.00 | | .15 | | | | 4.15 | 4.15 | | | | .20 | |
| 14 | Oakland Transit Consolidated | 122.80 | 76.16 | 45.21 | 1.43 | 121.80 | | | 1.00 | 122.80 | | | 4.13 | 2.06 | |
| 15 | Ontario and San Antonio Heights | 8.00 | 7.75 | | .25 | 8.00 | | | | 8.00 | | | | | |
| 16 | Pasadena and Mt. Lowe | 6.64 | 5.83 | | .81 | 6.12 | Cable | .52 | | 6.64 | | | | 5.42 | |
| 17 | Paso Robles Street Car | 2.50 | 2.50 | | | | | | 2.50 | 2.50 | | | | | |
| 18 | Petaluma Street Railway | 1.81 | 1.75 | | .06 | | | | 1.81 | 1.81 | | | | | |
| 19 | Pomona Street Railway | 2.56 | 2.50 | | .06 | | Steam | 2.56 | | 2.56 | | | | | .25 |
| 20 | Redlands Street Railway | 7.27 | 7.18 | | .09 | 7.27 | | | | 7.27 | | | 2.40 | .27 | 1.73 |
| 21 | Riverside and Arlington | 9.52 | 9.19 | | .33 | 9.52 | | | | 9.52 | | | | | |
| 22 | Sacramento Electric, Gas and Rwy. | 23.50 | 13.73 | 8.31 | 1.46 | 23.50 | | | | 23.50 | | | | | |
| 23 | San Bernardino Valley | 7.62 | 7.50 | | .12 | 7.62 | | | | 7.62 | | | 7.50 | .50 | |
| 24 | San Diego Electric Railway | 16.60 | 11.64 | 4.96 | | 16.60 | | | | 16.60 | | | | | |
| 25 | Geary Street, Park and Ocean | 7.68 | 3.84 | 3.84 | | | Cable | 7.68 | | 7.68 | | .74 | | | |
| 26 | California Street Cable | 10.86 | 5.38 | 5.38 | .10 | | Cable | 10.86 | | 10.86 | | | | | |
| 27 | Presidio and Ferries | 9.01 | 4.92 | 4.08 | .01 | | Cable | [12]7.25 | 1.76 | 9.01 | | | | | |
| 28 | United Railroads of San Francisco | 248.95 | 140.41 | 107.63 | .91 | 177.53 | Cable | [13]67.53 | 3.89 | 248.95 | | | 13.11 | | |
| 29 | San Jose Railroad | 15.16 | 12.58 | 2.49 | .09 | 15.16 | | | | 15.16 | | | | | |
| 30 | San Jose and Santa Clara | 18.12 | 13.50 | 4.00 | .62 | 18.12 | | | | 18.12 | | | | 1.50 | |
| 31 | Santa Barbara Consolidated | 8.50 | 8.00 | | .50 | 8.50 | | | | 8.50 | | | | | |
| 32 | Santa Cruz Electric | 5.67 | 5.56 | | .11 | 5.67 | | | | 5.67 | | | | | |
| 33 | East Santa Cruz | 2.85 | 2.80 | .05 | | | | | 2.85 | 2.85 | | | | 1.50 | |
| 34 | Santa Rosa Street Railway | 7.33 | 7.33 | | | | | | 7.33 | 7.33 | | | | | |
| 35 | Stockton Electric | 11.98 | 5.95 | 5.95 | .08 | 11.98 | | | | 11.98 | | | | | |
| | COLORADO. | | | | | | | | | | | | | | |
| | Total for state | 234.53 | 154.17 | 69.36 | 11.00 | 233.28 | | | 1.25 | 232.98 | 1.55 | | 7.97 | 10.87 | |
| 1 | Boulder Railway and Utility | 4.08 | 4.00 | | .08 | 4.08 | | | | 4.08 | | | 1.00 | .04 | |
| 2 | Colorado Springs and Cripple Creek | 11.78 | 10.89 | | .89 | 11.78 | | | | 11.78 | | | | 10.03 | |
| 3 | Colorado Springs Rapid Transit | 29.01 | 20.86 | 6.77 | 1.38 | 29.01 | | | | 27.46 | 1.55 | | | .76 | |
| 4 | Denver, Lakewood and Golden | 6.00 | 5.00 | 1.00 | | 6.00 | | | | 6.00 | | | | | |
| 5 | Denver City Tramway | 143.77 | 85.89 | 49.84 | 8.04 | 143.77 | | | | 143.77 | | | 4.52 | | |
| 6 | Durango Railway and Realty | 2.39 | 2.28 | | .11 | 2.39 | | | | 2.39 | | | | | |
| 7 | Grand Junction (municipal) | 1.25 | 1.25 | | | | | | 1.25 | 1.25 | | | .05 | | |
| 8 | Pueblo Traction and Lighting | 36.25 | 24.00 | 11.75 | .50 | 36.25 | | | | 36.25 | | | 2.40 | .04 | |

[1] For details see Supplementary Table 1.
[2] For feeder conduit system see Supplementary Table 2.
[3] Includes 12.48 miles of track duplicated in reports of different companies. (See Illinois, New York, and Pennsylvania.)
[4] Includes 21,068.42 miles of single trolley and 234.15 miles of double trolley construction; also 12.48 miles of track duplicated in reports of different companies.
[5] Includes miles of track as follows: Cable, 240.69; compressed air, 6.06; conduit trolley, 266.06; steam, 169.61; storage batteries, 2.47; and third rail, 342.91.
[6] Exclusive of Massachusetts, but including track outside city limits for 1 company in Kansas.
[7] Exclusive of Massachusetts, but including track within city limits for 3 companies in Connecticut and 3 in Maine.

CONSTRUCTION, BY COMPANIES: 1902.

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. Maximum. | Weight of rails per yard. Minimum. | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket. | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. (+) | Number. |
| [6]13,208.24 | [7]6,855.58 | 1,642.68 | | | | 2,748 | 480,912 | 2,514 | 1,967 | 10,220.07 | 5,223.08 | 414.11 | | [8]3,112.58 | [9]12,728.76 | 22,343.22 | 2,411.07 | |
| 124.60 | 80.12 | | | | | 29 | 2,856 | 10 | 67 | 113.63 | 21.82 | 2.25 | | | 137.70 | 178.17 | | |
| 8.50 | 1.50 | | 60 | 30 | T, full groove | 9 | 476 | | 3 | 7.00 | 2.50 | | 42 | | 9.50 | 16.00 | | 1 |
| 50.00 | 60.00 | | 80 | 60 | Girder, half groove, T. | 10 | 2,140 | 6 | 39 | 54.00 | 10.00 | | 53 | | 64.00 | 122.00 | | 2 |
| 3.03 | | | 20 | 16 | T | | | | 1 | | | | | | | | | 3 |
| 3.70 | 3.00 | | 40 | 35 | T | 2 | 120 | | 8 | 1.50 | 4.70 | | 52 | | 6.20 | 6.20 | | 4 |
| 2.00 | 2.62 | | 60 | 60 | T | 2 | 12 | | 2 | 4.50 | | | 52 | | 4.50 | 4.63 | | 5 |
| 29.00 | 8.50 | | 88 | 35 | T, girder | 4 | 60 | 2 | 4 | 28.50 | | 2.25 | 52 | | 30.75 | 26.00 | | 6 |
| 20.00 | | | 90 | 60 | Groove, girder, T. | | | 2 | 6 | 14.00 | 3.00 | | 44 | | 17.00 | 3.00 | | 7 |
| 5.37 | .50 | | 45 | 35 | T | | | | 3 | 4.13 | 1.62 | | 48 | | 5.75 | .34 | | 8 |
| 3.00 | 4.00 | | 60 | 35 | T | 2 | 48 | | 1 | | | | | | | | | 9 |
| 13.50 | 3.60 | | | | | 9 | 225 | | 3 | 7.00 | 3.00 | | | .50 | 9.50 | 4.00 | | |
| 9.00 | 3.00 | | 60 | 30 | T | 6 | 75 | | 2 | 7.00 | 3.00 | | 50 | .50 | 9.50 | 4.00 | | 1 |
| 4.50 | .60 | | 16 | 16 | T | 3 | 150 | | 1 | | | | | | | | | 2 |
| 50.83 | 1.66 | | | | | 8 | 949 | 2 | 3 | 31.31 | 2.40 | 1.80 | | 2.33 | 33.18 | 20.86 | | |
| 3.07 | .10 | | 65 | 35 | T | | | | | .50 | 2.40 | | 65 | | 2.90 | 1.25 | | 1 |
| 7.52 | .05 | | 60 | 45 | T, girder | 1 | 24 | | 1 | 4.80 | | 1.20 | 52 | .80 | 5.20 | 1.00 | | 2 |
| 1.25 | .11 | | 60 | 56 | T | 1 | 20 | | | 1.36 | | | 48 | | 1.36 | .33 | | 3 |
| 8.88 | .40 | | 45 | 25 | T | | | | | 4.22 | | .60 | 52 | | 4.82 | 3.28 | | 4 |
| 20.70 | | | 73 | 70 | Girder, T | 2 | 120 | 2 | | 13.43 | | | 50 | 1.03 | 12.40 | 14.00 | | 5 |
| 6.75 | 1.00 | | 90 | 50 | Girder, T | 4 | 785 | | 2 | 7.00 | | | 53 | .50 | 6.50 | 1.00 | | 6 |
| 2.66 | | | 30 | 20 | T | | | | | | | | | | | | | 7 |
| 667.20 | 161.90 | 110.62 | | | | 57 | 11,913 | 47 | 65 | 339.82 | 58.39 | 24.44 | | 101.33 | 321.32 | 255.48 | | |
| 2.15 | | | 45 | 40 | Girder | | | | | 2.08 | | | 52 | | 2.08 | 3.50 | | 1 |
| 2.50 | | | 20 | 20 | T | | | | 1 | | | | | | | | | 2 |
| 1.00 | 1.90 | | 20 | 20 | T | | | | 2 | | | | | | | | | 3 |
| 1.25 | 3.85 | | 70 | 70 | T | | | | 1 | | 5.00 | | 50 | | 5.00 | | | 4 |
| .14 | | | 16 | 16 | T | | | | | | | | | | | | | 5 |
| 94.82 | | 43.00 | 62 | 38 | T, girder | 4 | 4,400 | 20 | 7 | 55.82 | | | 48 | | 55.82 | 50.00 | | 6 |
| 28.37 | 3.49 | | 60 | 40 | T | 5 | 2,445 | 3 | 9 | 11.71 | 8.75 | | 50 | | 20.46 | 25.00 | | 7 |
| 21.61 | 65.87 | 2.66 | 60 | 40 | T | | | 1 | 1 | 12.78 | 15.65 | 20.65 | 50 | | 49.08 | | | 8 |
| 7.22 | 4.12 | 1.00 | 65 | 25 | T | | | | | 2.18 | | | 50 | | 2.18 | | | 9 |
| 26.00 | | | 70 | 60 | T | | | | 2 | [11] | | | | | | 12.00 | | 10 |
| 1.72 | 2.51 | | 22 | 16 | T, girder | | | | 2 | | | | | | | | | 11 |
| 1.50 | | | 48 | 48 | T | | | | 1 | | | | | | | | | 12 |
| 4.15 | | | 20 | 20 | T | | | | | | | | | | | | | 13 |
| 105.99 | 16.81 | 12.39 | 97 | 35 | T, girder | 2 | 816 | 11 | 8 | 66.43 | 8.73 | | 45 | 52.11 | 23.05 | 71.08 | | 14 |
| 1.75 | 6.25 | | 30 | 30 | T | 2 | 200 | | 2 | 6.00 | 1.75 | | 50 | | 7.75 | 2.25 | | 15 |
| | 6.64 | | 30 | 25 | T | 20 | 1,328 | | | | 5.57 | | 52 | | 5.57 | 6.25 | | 16 |
| 1.75 | .75 | | 15 | 15 | T | | | | | | | | | | | | | 17 |
| 1.81 | | | 38 | 38 | Flat | | | | 1 | | | | | | | | | 18 |
| 2.56 | | | 25 | 25 | T | | | | | | | | | | | | | 19 |
| 6.91 | .36 | | 56 | 45 | T | 3 | 96 | 2 | | 5.02 | 2.16 | | 44 | | 7.18 | 1.03 | | 20 |
| 9.52 | | | 40 | 35 | T | 2 | 40 | | 1 | 9.19 | | | 50 | | 9.19 | 7.00 | | 21 |
| 22.70 | .80 | | 51 | 25 | T, girder | 2 | 50 | | 4 | 13.73 | | | 40 | | 13.73 | 7.50 | | 22 |
| 5.50 | 2.12 | | 45 | 45 | T | 3 | 460 | | 3 | 7.00 | .50 | | 44 | | 7.50 | | | 23 |
| 15.60 | 1.00 | | 60 | 30 | Groove, girder | | | | 4 | 10.00 | 1.64 | | 50 | | 11.64 | 3.00 | | 24 |
| 7.68 | | | 72 | 72 | Girder | | | | | | | | | | | | | 25 |
| 10.86 | | | 38 | 38 | Girder | | | | | | | | | | | | | 26 |
| 9.01 | | | 40 | 40 | Flat, T | | | | | | | | | | | | | 27 |
| 224.84 | 24.11 | 49.32 | 98 | 35 | T, girder | 4 | 625 | 9 | 4 | 98.66 | 2.27 | 3.79 | 50 | 49.22 | 55.50 | 53.06 | | 28 |
| 10.72 | 4.44 | 2.25 | 42 | 35 | T, girder | | | | 3 | 10.58 | 2.00 | | 44 | | 12.58 | 2.56 | | 29 |
| 11.12 | 7.00 | | 35 | 35 | T | 8 | 813 | | 2 | 9.63 | 3.87 | | 50 | | 13.50 | 2.05 | | 30 |
| 8.50 | | | 56 | 45 | T | | | | 1 | 7.50 | .50 | | 50 | | 8.00 | 6.00 | | 31 |
| 5.67 | | | 40 | 40 | T, girder | | | | | 5.56 | | | 50 | | 5.56 | .50 | | 32 |
| 2.00 | .85 | | 45 | 35 | Flat | 2 | 640 | | 1 | | | | | | | | | 33 |
| 5.00 | 2.33 | | 35 | 16 | T, flat | | | | 2 | | | | | | | | | 34 |
| 5.28 | 6.70 | | 40 | 40 | Girder, T | | | 1 | 3 | 5.95 | | | 53 | | 5.95 | 2.70 | | 35 |
| 213.93 | 20.60 | | | | | 26 | 8,094 | 12 | 11 | 140.16 | 12.76 | | | 5.20 | 147.72 | 214.43 | | |
| 4.08 | | | 45 | 30 | T | | | | 2 | 4.00 | | | 70 | | 4.00 | 2.00 | | 1 |
| 1.75 | 10.03 | | 60 | 60 | T | 6 | 944 | | 4 | 2.00 | 8.89 | | 40 | | 10.89 | 14.20 | | 2 |
| 20.46 | 8.55 | | 75 | 30 | T | 11 | 670 | 1 | 2 | 20.86 | | | 53 | 20 | 20.66 | 19.74 | | 3 |
| 6.00 | | | 75 | 48 | T | 7 | 480 | 2 | | 5.00 | | | 52 | | 5.00 | | | 4 |
| 142.39 | 1.38 | | 72 | 30 | T, girder | 2 | 6,000 | 7 | 1 | 82.02 | 3.87 | | 45 | 5.00 | 80.89 | 164.79 | | 5 |
| 1.75 | .64 | | 30 | 30 | T | | | | 1 | 2.28 | | | 52 | | 2.28 | | | 6 |
| 1.25 | | | 30 | 30 | T | | | | | | | | | | | | | 7 |
| 36.25 | | | 80 | 30 | T | | | 2 | 1 | 24.00 | | | 50 | | 24.00 | 13.70 | | 8 |

[8] In addition 15.92 miles supported by elevated railroad structures and by buildings and bridges.
[9] Includes 85.72 miles of cable and 35.05 miles of steam.
[10] Includes 4.45 miles operated by steam.
[11] Not reported.
[12] Includes 1.25 miles operated by steam.
[13] Includes 11.72 miles operated by steam.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turnouts. | Overhead trolley. | Other mechanical traction. | | Animal. | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | CONNECTICUT. | | | | | | | | | | | | | | |
| | Total for state | 578.49 | 461.05 | 89.50 | 27.94 | 552.60 | ..... | 25.89 | ..... | 543.06 | 35.43 | 14.94 | 16.75 | 72.56 | ..... |
| 1 | Branford Lighting and Water | 6.51 | 5.15 | ..... | 1.36 | 6.51 | ..... | ..... | ..... | 6.51 | ..... | ..... | ..... | 2.16 | ..... |
| 2 | Connecticut Railway and Lighting | 159.28 | 118.32 | 33.40 | 7.56 | 159.28 | ..... | ..... | ..... | 159.28 | ..... | ..... | ..... | 25.06 | ..... |
| 3 | Bristol and Plainville Tramway | 7.92 | 7.34 | ..... | .58 | 7.92 | ..... | ..... | ..... | 7.92 | ..... | ..... | ..... | .50 | ..... |
| 4 | Danbury and Bethel | 11.73 | 10.44 | .20 | 1.09 | 11.73 | ..... | ..... | ..... | 11.73 | ..... | ..... | ..... | .20 | ..... |
| 5 | Greenwich Tramway | 5.76 | 5.57 | ..... | .19 | 5.76 | ..... | ..... | ..... | 5.76 | ..... | ..... | 5.76 | .38 | ..... |
| 6 | Hartford and Springfield | 13.47 | 13.00 | ..... | .47 | 13.47 | ..... | ..... | ..... | 13.47 | ..... | ..... | 6.00 | ..... | ..... |
| 7 | Farmington Street Railway | 10.80 | 9.70 | ..... | 1.10 | 10.80 | ..... | ..... | ..... | 10.80 | ..... | 3.80 | ..... | 1.30 | ..... |
| 8 | Hartford Street Railway | 87.67 | 66.26 | 18.58 | 2.83 | 87.67 | ..... | ..... | ..... | 77.47 | 10.20 | 6.25 | .08 | 2.30 | ..... |
| 9 | Hartford, Manchester and Rockville. | 18.13 | 17.69 | ..... | .44 | 18.13 | ..... | ..... | ..... | 17.34 | .79 | ..... | ..... | .57 | ..... |
| 10 | New York, New Haven and Hartford (Berlin system). | 25.89 | 21.02 | 3.18 | 1.69 | ..... | 3d rail | 25.89 | ..... | 25.89 | ..... | ..... | ..... | 21.02 | ..... |
| 11 | Meriden, Southington and Compounce. | 12.34 | 11.64 | ..... | .70 | 12.34 | ..... | ..... | ..... | 12.34 | ..... | 2.05 | ..... | 2.82 | ..... |
| 12 | Meriden Electric Railroad | 19.50 | 17.40 | 1.50 | .60 | 19.50 | ..... | ..... | ..... | 19.50 | ..... | ..... | ..... | ..... | ..... |
| 13 | Middletown Street Railway | 9.93 | 9.05 | ..... | .88 | 9.93 | ..... | ..... | ..... | 9.93 | ..... | ..... | ..... | ..... | ..... |
| 14 | Manufacturers Railroad | 1.36 | 1.36 | ..... | ..... | 1.36 | ..... | ..... | ..... | 1.36 | ..... | ..... | ..... | ..... | ..... |
| 15 | Fair Haven and Westville | 95.67 | 59.60 | 31.32 | 4.75 | 95.67 | ..... | ..... | ..... | 71.23 | 24.44 | ..... | ..... | 3.00 | ..... |
| 16 | New London Street Railway | 8.51 | 6.70 | 1.32 | .49 | 8.51 | ..... | ..... | ..... | 8.51 | ..... | ..... | ..... | ..... | ..... |
| 17 | Montville Street Railway | 10.67 | 10.46 | ..... | .21 | 10.67 | ..... | ..... | ..... | 10.67 | ..... | 2.84 | ..... | ..... | ..... |
| 18 | Norwich Street Railway | 17.65 | 17.00 | ..... | .65 | 17.65 | ..... | ..... | ..... | 17.65 | ..... | ..... | ..... | .75 | ..... |
| 19 | Peoples Tramway | 16.44 | 15.94 | ..... | .50 | 16.44 | ..... | ..... | ..... | 16.44 | ..... | ..... | ..... | 4.50 | ..... |
| 20 | Stamford Street Railroad | 12.69 | 12.49 | ..... | .20 | 12.69 | ..... | ..... | ..... | 12.69 | ..... | ..... | ..... | ..... | ..... |
| 21 | New York, New Haven and Hartford (New Canaan branch). | 8.63 | 7.66 | ..... | .97 | 8.63 | ..... | ..... | ..... | 8.63 | ..... | ..... | ..... | ..... | ..... |
| 22 | Suffield Street Railway | 4.91 | 4.70 | ..... | .21 | 4.91 | ..... | ..... | ..... | 4.91 | ..... | ..... | 4.91 | ..... | ..... |
| 23 | Torrington and Winchester | 13.03 | 12.56 | ..... | .47 | 13.03 | ..... | ..... | ..... | 13.03 | ..... | ..... | ..... | 8.00 | ..... |
| | DELAWARE. | | | | | | | | | | | | | | |
| | Total for state | 85.61 | 71.55 | 11.45 | 2.61 | 85.61 | ..... | ..... | ..... | 85.61 | ..... | 4.05 | 21.25 | 24.17 | 3.13 |
| 1 | Wilmington and New Castle | 13.45 | 13.00 | ..... | .45 | 13.45 | ..... | ..... | ..... | 13.45 | ..... | 4.05 | 9.25 | 9.00 | ..... |
| 2 | Peoples Railway | 31.38 | 26.50 | 4.50 | .38 | 31.38 | ..... | ..... | ..... | 31.38 | ..... | ..... | 10.00 | 4.00 | .50 |
| 3 | Wilmington City | 40.78 | 32.05 | 6.95 | 1.78 | 40.78 | ..... | ..... | ..... | 40.78 | ..... | ..... | 2.00 | 11.17 | 2.63 |
| | DISTRICT OF COLUMBIA. | | | | | | | | | | | | | | |
| | Total for district | 161.97 | 82.68 | 79.29 | ..... | [5]76.89 | ..... | 85.08 | ..... | 161.97 | ..... | 6.70 | 5.68 | 36.81 | ..... |
| 1 | Anacostia and Potomac River | 18.10 | 9.83 | 8.27 | ..... | [6]2.96 | Conduit | 15.14 | ..... | 18.10 | ..... | 4.80 | ..... | ..... | ..... |
| 2 | Brightwood Railway | 11.69 | 5.85 | 5.84 | ..... | 11.69 | ..... | ..... | ..... | 11.69 | ..... | ..... | ..... | ..... | ..... |
| 3 | Capital Traction | 40.69 | 20.35 | 20.34 | ..... | 11.00 | Conduit | 29.69 | ..... | 40.69 | ..... | .67 | 4.73 | ..... | ..... |
| 4 | City and Suburban of Washington | 31.80 | 16.08 | 15.72 | ..... | 19.76 | Conduit | 12.04 | ..... | 31.80 | ..... | .82 | ..... | 14.09 | ..... |
| 5 | Columbia Railway | 14.72 | 7.84 | 6.88 | ..... | [6]9.18 | Conduit | 5.54 | ..... | 14.72 | ..... | ..... | .95 | 8.74 | ..... |
| 6 | Georgetown and Tennallytown | 8.32 | 4.40 | 3.92 | ..... | 8.32 | ..... | ..... | ..... | 8.32 | ..... | ..... | ..... | ..... | ..... |
| 7 | Metropolitan Railroad | 22.67 | 11.34 | 11.33 | ..... | ..... | Conduit | 22.67 | ..... | 22.67 | ..... | .41 | ..... | ..... | ..... |
| 8 | Washington and Great Falls | 13.98 | 6.99 | 6.99 | ..... | 13.98 | ..... | ..... | ..... | 13.98 | ..... | ..... | ..... | 13.98 | ..... |
| | FLORIDA. | | | | | | | | | | | | | | |
| | Total for state | 61.75 | 57.43 | 1.64 | 2.68 | 57.00 | ..... | ..... | 4.75 | 61.75 | ..... | ..... | 1.25 | .04 | .33 |
| 1 | Fort Meade Street Railway | 1.25 | 1.25 | ..... | ..... | ..... | ..... | ..... | 1.25 | 1.25 | ..... | ..... | ..... | ..... | ..... |
| 2 | Jacksonville Electric | 18.15 | 15.89 | 1.14 | 1.12 | 18.15 | ..... | ..... | ..... | 18.15 | ..... | ..... | ..... | .04 | ..... |
| 3 | Key West Electric | 3.74 | 3.54 | ..... | .20 | 3.74 | ..... | ..... | ..... | 3.74 | ..... | ..... | ..... | ..... | ..... |
| 4 | Palatka and Heights Street Railway | 3.50 | 3.50 | ..... | ..... | ..... | ..... | ..... | 3.50 | 3.50 | ..... | ..... | ..... | ..... | .33 |
| 5 | Pensacola Electric Terminal | 9.00 | 8.50 | ..... | .50 | 9.00 | ..... | ..... | ..... | 9.00 | ..... | ..... | ..... | ..... | ..... |
| 6 | Tampa Electric | 26.11 | 24.75 | .50 | .86 | 26.11 | ..... | ..... | ..... | 26.11 | ..... | ..... | 1.25 | ..... | ..... |
| | GEORGIA. | | | | | | | | | | | | | | |
| | Total for state | 300.38 | 222.18 | 72.22 | 5.98 | 296.63 | ..... | ..... | 3.75 | 300.38 | ..... | 3.00 | 6.20 | 30.94 | 3.05 |
| 1 | Athens Electric Railway | 6.53 | 6.50 | ..... | .03 | 6.53 | ..... | ..... | ..... | 6.53 | ..... | ..... | .75 | ..... | .05 |
| 2 | Georgia Railway and Electric | 150.00 | 104.00 | 43.00 | 3.00 | 150.00 | ..... | ..... | ..... | 150.00 | ..... | 3.00 | 3.00 | 11.00 | ..... |
| 3 | Augusta Railway and Electric | 31.02 | 16.97 | 12.36 | 1.69 | 31.02 | ..... | ..... | ..... | 31.02 | ..... | ..... | 2.45 | ..... | ..... |
| 4 | Columbus Railroad | 17.00 | 14.90 | 2.00 | .10 | 17.00 | ..... | ..... | ..... | 17.00 | ..... | ..... | ..... | ..... | ..... |
| 5 | Covington and Oxford | 2.25 | 2.12 | ..... | .13 | ..... | ..... | ..... | 2.25 | 2.25 | ..... | ..... | ..... | .50 | ..... |
| 6 | Macon Railway and Light | 30.67 | 28.00 | 2.00 | .67 | 30.67 | ..... | ..... | ..... | 30.67 | ..... | ..... | ..... | ..... | ..... |
| 7 | City Electric Railway | 6.28 | 6.20 | ..... | .08 | 6.28 | ..... | ..... | ..... | 6.28 | ..... | ..... | ..... | ..... | ..... |
| 8 | Savannah Electric | 53.05 | 39.99 | 12.86 | .20 | 53.05 | ..... | ..... | ..... | 53.05 | ..... | ..... | ..... | 18.36 | 3.00 |
| 9 | Valdosta Street Railway | 2.08 | 2.00 | ..... | .08 | 2.08 | ..... | ..... | ..... | 2.08 | ..... | ..... | ..... | 1.00 | ..... |
| 10 | Washington Street Railway | 1.50 | 1.50 | ..... | ..... | ..... | ..... | ..... | 1.50 | 1.50 | ..... | ..... | ..... | .08 | ..... |
| | IDAHO. | | | | | | | | | | | | | | |
| | Total for state | 3.50 | 3.33 | ..... | .17 | 3.50 | ..... | ..... | ..... | 3.50 | ..... | ..... | ..... | ..... | ..... |
| 1 | Boise Rapid Transit | 3.50 | 3.33 | ..... | .17 | 3.50 | ..... | ..... | ..... | 3.50 | ..... | ..... | ..... | ..... | ..... |

[1] For details see Supplementary Table 1.
[2] For feeder conduit system see Supplementary Table 2.
[3] Includes track within city limits for 3 companies. (See note 4.)

CONSTRUCTION, BY COMPANIES: 1902—Continued.

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. Maximum. | Weight of rails per yard. Minimum. | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. (2) | Number. |
| 239.66 | [3]338.83 | ..... | ..... | ..... | ..... | 57 | 5,900 | 25 | 4 | 236.34 | 202.73 | .96 | ..... | 89.30 | 350.73 | 479.05 | ..... | |
| 2.99 | 3.52 | ..... | 60 | 60 | T | 1 | 175 | ..... | ..... | ..... | 5.15 | ..... | 50 | ..... | 5.15 | 8.96 | ..... | 1 |
| 69.16 | 90.12 | ..... | 90 | 35 | T, girder | 13 | 2,500 | 14 | ..... | 98.00 | 20.00 | .32 | 49 | 3.00 | 115.32 | 151.72 | ..... | 2 |
| 1.75 | 6.17 | ..... | 60 | 56 | T | 5 | 240 | ..... | ..... | 3.00 | 4.34 | ..... | 44 | ..... | 7.34 | 6.50 | ..... | 3 |
| 5.50 | 6.23 | ..... | 80 | 48 | T, full groove | ..... | ..... | 3 | ..... | 10.44 | ..... | ..... | 43 | ..... | 10.44 | 8.00 | ..... | 4 |
| 5.76 | ..... | ..... | 80 | 80 | T | 1 | 146 | ..... | ..... | ..... | 5.57 | ..... | 52 | ..... | 5.57 | 5.57 | ..... | 5 |
| 2.50 | 10.97 | ..... | 70 | 60 | T | 2 | 340 | ..... | ..... | ..... | 13.00 | ..... | 60 | ..... | 13.00 | 13.00 | ..... | 6 |
| ..... | 10.80 | ..... | 56 | 56 | T | 2 | 165 | ..... | ..... | ..... | 9.70 | ..... | 45 | ..... | 9.70 | 9.70 | ..... | 7 |
| 43.80 | 43.87 | ..... | 107 | 70 | T, girder, groove | 10 | 507 | 1 | ..... | 31.23 | 34.39 | .64 | 45 | 31.92 | 34.34 | 49.70 | ..... | 8 |
| 2.00 | 16.13 | ..... | 56 | 56 | T | 7 | 425 | ..... | 1 | .38 | 17.31 | ..... | 52 | .79 | 16.90 | 30.00 | ..... | 9 |
| ..... | [4]25.89 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 10 |
| ..... | [4]12.34 | ..... | 56 | 56 | T | 4 | 240 | ..... | ..... | 3.00 | 8.64 | ..... | 63 | ..... | 11.64 | 11.64 | ..... | 11 |
| 19.50 | ..... | ..... | 90 | 40 | T, girder | ..... | ..... | 2 | 1 | 9.50 | 7.90 | ..... | 50 | ..... | 17.40 | 17.00 | ..... | 12 |
| 3.00 | 6.93 | ..... | 52 | 38 | T | ..... | ..... | ..... | ..... | 5.05 | 4.00 | ..... | 53 | ..... | 9.05 | 7.00 | ..... | 13 |
| 1.36 | ..... | ..... | 70 | 70 | T | ..... | ..... | ..... | ..... | ..... | 1.36 | ..... | 50 | ..... | 1.36 | ..... | ..... | 14 |
| 36.00 | 59.67 | ..... | 80 | 50 | T | 2 | 100 | 2 | 1 | 45.60 | 14.00 | ..... | 50 | 52.79 | 6.81 | 100.00 | ..... | 15 |
| 8.51 | ..... | ..... | 48 | 48 | T | ..... | ..... | ..... | ..... | 6.14 | .56 | ..... | 50 | .30 | 6.40 | 15.24 | ..... | 16 |
| ..... | 10.67 | ..... | 60 | 60 | T | 4 | 530 | ..... | 1 | 1.50 | 8.96 | ..... | 50 | ..... | 10.46 | 10.46 | ..... | 17 |
| 7.23 | 10.42 | ..... | 90 | 48 | T | ..... | ..... | 1 | ..... | 5.00 | 12.00 | ..... | 50 | .50 | 16.50 | 14.00 | ..... | 18 |
| 9.00 | 7.44 | ..... | 72 | 56 | T | 3 | 182 | ..... | ..... | 2.50 | 13.44 | ..... | 50 | ..... | 15.94 | 10.00 | ..... | 19 |
| 12.69 | ..... | ..... | 70 | 60 | T | ..... | ..... | ..... | ..... | 12.00 | .49 | ..... | 50 | ..... | 12.49 | ..... | ..... | 20 |
| ..... | [4]8.63 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7.66 | ..... | 50 | ..... | 7.66 | ..... | ..... | 21 |
| 4.91 | ..... | ..... | 66 | 66 | T | ..... | ..... | ..... | ..... | ..... | 4.70 | ..... | 52 | ..... | 4.70 | ..... | ..... | 22 |
| 4.00 | 9.03 | ..... | 56 | 56 | T | 3 | 350 | 2 | ..... | 3.00 | 9.56 | ..... | 48 | ..... | 12.56 | 10.56 | ..... | 23 |
| 53.98 | 31.63 | ..... | ..... | ..... | ..... | 19 | 2,366 | 7 | 12 | 47.89 | 23.66 | ..... | ..... | ..... | 71.55 | 121.50 | ..... | |
| 6.00 | 7.45 | ..... | 70 | 58 | Girder, T | 6 | 470 | 2 | 5 | 4.00 | 9.00 | ..... | 52 | ..... | 13.00 | 11.50 | ..... | 1 |
| 21.00 | 10.38 | ..... | 90 | 60 | Girder, T, groove, full groove. | 10 | 985 | 1 | ..... | 26.25 | .25 | ..... | 52 | ..... | 26.50 | 60.00 | ..... | 2 |
| 26.98 | 13.80 | ..... | 95 | 56 | Girder, T, groove. | 3 | 911 | 4 | 7 | 17.64 | 14.41 | ..... | 53 | ..... | 32.05 | 50.00 | ..... | 3 |
| 126.49 | 35.48 | 39.63 | ..... | ..... | ..... | 25 | 3,912 | 5 | 1 | 15.26 | ..... | 23.92 | ..... | 7.44 | 31.74 | 93.58 | 66.25 | |
| 18.10 | ..... | 12.63 | 83 | 62 | T, girder | ..... | ..... | 2 | ..... | 1.48 | ..... | ..... | 52 | .37 | 1.11 | ..... | 2.27 | 1 |
| 11.69 | ..... | ..... | 83 | 70 | T, girder | ..... | ..... | ..... | ..... | .11 | ..... | 5.74 | 52 | .11 | 5.74 | 2.81 | ..... | 2 |
| 37.04 | 3.65 | 27.00 | 95 | 50 | T, full groove | 2 | 1,117 | 2 | ..... | ..... | ..... | 5.50 | 42 | .50 | 5.00 | 5.25 | 9.21 | 3 |
| 22.27 | 9.53 | ..... | 95 | 62 | T, full groove, girder. | 4 | 239 | ..... | ..... | ..... | ..... | 9.88 | 52 | 3.89 | 5.99 | 31.06 | 21.05 | 4 |
| 14.72 | ..... | ..... | 86 | 67 | T, full groove, girder. | 5 | 677 | 1 | ..... | 5.08 | ..... | ..... | 52 | .88 | 4.20 | 7.31 | ..... | 5 |
| ..... | 8.32 | ..... | 83 | 60 | T, girder | 1 | 12 | ..... | ..... | 1.60 | ..... | 2.80 | 58 | 1.60 | 2.80 | 31.29 | ..... | 6 |
| 22.67 | ..... | ..... | 83 | 67 | Groove | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 33.72 | 7 |
| ..... | 13.98 | ..... | 60 | 58 | T, girder | 13 | 1,867 | ..... | ..... | 6.99 | ..... | ..... | 52 | .09 | 6.90 | 15.86 | ..... | 8 |
| 49.19 | 12.56 | ..... | ..... | ..... | ..... | 2 | 270 | 1 | 17 | 43.68 | 9.00 | ..... | ..... | ..... | 52.68 | 30.00 | ..... | |
| 1.25 | ..... | ..... | 30 | 30 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 16.70 | 1.45 | ..... | 70 | 40 | T, girder | 1 | 220 | ..... | 7 | 15.89 | ..... | ..... | 52 | ..... | 15.89 | 8.80 | ..... | 2 |
| 3.74 | ..... | ..... | 65 | 60 | T | ..... | ..... | ..... | ..... | 3.54 | ..... | ..... | 52 | ..... | 3.54 | 2.20 | ..... | 3 |
| 3.50 | ..... | ..... | 40 | 25 | Groove, T | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 |
| 9.00 | ..... | ..... | 60 | 50 | T | ..... | ..... | ..... | 6 | 7.50 | 1.00 | ..... | 52 | ..... | 8.50 | 3.00 | ..... | 5 |
| 15.00 | 11.11 | ..... | 60 | 30 | T | 1 | 50 | 1 | 2 | 16.75 | 8.00 | ..... | 52 | ..... | 24.75 | 16.00 | ..... | 6 |
| 200.40 | 99.98 | ..... | ..... | ..... | ..... | 18 | 460 | 5 | 21 | 163.98 | 45.40 | 9.18 | ..... | 12.00 | 206.56 | 177.20 | 9.00 | |
| 6.48 | .05 | ..... | 74 | 40 | T, girder | ..... | ..... | ..... | ..... | 6.42 | .08 | ..... | 40 | ..... | 6.50 | 7.00 | ..... | 1 |
| 90.70 | 59.30 | ..... | 88 | 40 | Girder, half groove, T. | ..... | ..... | ..... | 2 | 94.00 | 10.00 | ..... | 40 | 12.00 | 92.00 | 117.00 | 9.00 | 2 |
| 31.02 | ..... | ..... | 70 | 30 | T | ..... | ..... | ..... | 8 | 9.97 | 3.16 | 3.84 | 44 | ..... | 16.97 | 14.00 | ..... | 3 |
| 10.40 | 6.60 | ..... | 56 | 40 | T | 9 | 250 | ..... | 8 | ..... | 13.76 | 1.14 | 45 | ..... | 14.90 | 12.00 | ..... | 4 |
| 2.03 | .22 | ..... | 25 | 25 | T | 3 | 30 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 |
| 20.50 | 10.17 | ..... | 70 | 30 | T | 2 | 60 | ..... | ..... | 19.60 | 4.20 | 4.20 | 50 | ..... | 28.00 | 12.00 | ..... | 6 |
| 5.08 | 1.20 | ..... | 40 | 30 | T | ..... | ..... | 1 | 1 | 2.00 | 4.20 | ..... | 48 | ..... | 6.20 | 1.50 | ..... | 7 |
| 31.69 | 21.36 | ..... | 70 | 35 | T | 4 | 120 | 4 | ..... | 29.99 | 10.00 | ..... | 50 | ..... | 39.99 | 12.20 | ..... | 8 |
| 1.00 | 1.08 | ..... | 45 | 45 | T | ..... | ..... | ..... | ..... | 2.00 | ..... | ..... | 50 | ..... | 2.00 | 1.50 | ..... | 9 |
| 1.50 | ..... | ..... | 45 | 45 | T | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 10 |
| 2.50 | 1.00 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3.33 | ..... | ..... | ..... | ..... | 3.33 | 3.50 | ..... | |
| 2.50 | 1.00 | ..... | 70 | 40 | T | ..... | ..... | ..... | ..... | 3.33 | ..... | ..... | 50 | ..... | 3.33 | 3.50 | ..... | 1 |

[1] Includes track within city limits.
[3] Includes 12.14 miles of double trolley construction.
[4] Double trolley construction.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turnouts. | Overhead trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— | |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | ILLINOIS. | | | | | | | | | | | | | | |
| | Total for state | [3]1,637.62 | 992.85 | 583.37 | 61.40 | 1,420.23 | ..... | [4]201.96 | 15.43 | 1,277.99 | 359.63 | 54.04 | 82.74 | 191.29 | 23.08 |
| 1 | Alton Railway, Gas and Electric | 12.25 | 12.00 | ..... | .25 | 12.25 | ..... | ..... | ..... | 12.25 | ..... | ..... | ..... | 1.00 | ..... |
| 2 | Elgin, Aurora and Southern | 62.96 | 59.84 | 2.12 | 1.00 | 62.96 | ..... | ..... | ..... | 62.96 | ..... | ..... | ..... | 11.00 | ..... |
| 3 | Bloomington and Normal | 21.00 | 20.00 | ..... | 1.00 | 21.00 | ..... | ..... | ..... | 21.00 | ..... | ..... | 6.00 | 3.00 | ..... |
| 4 | Mechanicsburg and Buffalo | 3.70 | 3.62 | ..... | .08 | ..... | ..... | ..... | 3.70 | 3.70 | ..... | ..... | ..... | ..... | 3.20 |
| 5 | Cairo Electric Railway | 5.67 | 5.52 | ..... | .15 | 5.67 | ..... | ..... | ..... | 5.67 | ..... | ..... | ..... | ..... | ..... |
| 6 | Egypt Electric | 4.00 | 3.90 | ..... | .10 | 4.00 | ..... | ..... | ..... | 4.00 | ..... | ..... | ..... | ..... | ..... |
| 7 | Centralia and Central City | 3.42 | 3.00 | ..... | .42 | ..... | ..... | ..... | 3.42 | 3.42 | ..... | ..... | ..... | ..... | .08 |
| 8 | Urbana and Champaign | 9.00 | 8.00 | .50 | .50 | 9.00 | ..... | ..... | ..... | 9.00 | ..... | ..... | 1.50 | 1.50 | ..... |
| 9 | Chicago City Railway | 222.50 | 104.90 | 104.90 | 12.70 | 179.60 | Cable.. | 41.10 | 1.80 | 222.50 | ..... | ..... | 4.50 | ..... | ..... |
| 10 | Chicago Union Traction | 305.15 | 155.42 | 148.41 | 1.32 | [5]250.26 | Cable.. | [6]50.60 | 4.29 | ..... | 305.15 | .17 | ..... | ..... | ..... |
| 11 | Chicago Consolidated Traction | 181.16 | 93.27 | 86.54 | 1.35 | 180.49 | ..... | ..... | .67 | 166.24 | 14.92 | 25.35 | ..... | .30 | ..... |
| 12 | Calumet Electric Street Railway | 80.94 | 42.12 | 38.50 | .32 | 80.94 | ..... | ..... | ..... | 79.32 | 1.62 | ..... | .25 | 4.20 | ..... |
| 13 | Chicago Electric Traction | [9]28.50 | 19.00 | 7.00 | 2.50 | 28.50 | ..... | ..... | ..... | 28.50 | ..... | ..... | ..... | ..... | ..... |
| 14 | Chicago General Railway | 21.14 | 10.86 | 8.73 | 1.55 | 21.14 | ..... | ..... | ..... | 21.14 | ..... | 4.60 | ..... | ..... | ..... |
| 15 | Chicago General Electric Railway | 1.50 | 1.50 | ..... | ..... | ..... | Str.bat. | 1.50 | ..... | 1.50 | ..... | ..... | ..... | ..... | ..... |
| 16 | Suburban Railroad | 43.59 | 22.94 | 19.65 | 1.00 | 43.59 | ..... | ..... | ..... | 30.80 | [10]12.79 | ..... | ..... | 11.00 | ..... |
| 17 | Northwestern Elevated Railroad | 30.37 | 8.42 | 19.46 | 2.49 | ..... | 3d rail. | 30.37 | ..... | 29.57 | .80 | ..... | ..... | 24.57 | ..... |
| 18 | South Side Elevated Railroad | 21.08 | 8.72 | [12]10.22 | 2.14 | ..... | 3d rail. | 21.08 | ..... | 21.08 | ..... | 1.98 | ..... | 6.25 | 2.47 |
| 19 | Metropolitan West Side Elevated | 39.34 | 16.86 | [12]20.48 | 2.00 | ..... | 3d rail. | 39.34 | ..... | 38.96 | .38 | 2.00 | 1.91 | 39.34 | ..... |
| 20 | South Chicago City Railway | 38.42 | 19.11 | 19.11 | .20 | 38.42 | ..... | ..... | ..... | 38.42 | ..... | ..... | ..... | ..... | ..... |
| 21 | Chicago and Milwaukee | 43.00 | 26.00 | 16.00 | 1.00 | 43.00 | ..... | ..... | ..... | 43.00 | ..... | 1.50 | ..... | 20.00 | 10.00 |
| 22 | Lake Street Elevated Railroad | [13]20.97 | 10.11 | 9.32 | 1.54 | 3.00 | 3d rail. | 17.97 | ..... | 20.97 | ..... | 6.32 | .75 | ..... | ..... |
| 23 | Chicago and Joliet | 62.89 | 46.19 | 14.40 | 2.30 | 62.89 | ..... | ..... | ..... | 38.92 | 23.97 | ..... | 24.00 | 11.00 | ..... |
| 24 | Northern Electric Railway | 4.00 | 3.50 | ..... | .50 | 4.00 | ..... | ..... | ..... | 4.00 | ..... | ..... | ..... | ..... | ..... |
| 25 | Danville Railway and Light | 12.50 | 8.50 | 3.50 | .50 | 12.50 | ..... | ..... | ..... | 12.50 | ..... | ..... | 1.00 | ..... | 1.50 |
| 26 | Danville, Paxton and Northern | 13.50 | 13.00 | ..... | .50 | 13.50 | ..... | ..... | ..... | 13.50 | ..... | .50 | 5.50 | 9.00 | ..... |
| 27 | Decatur Traction and Electric | 13.50 | 13.00 | ..... | .50 | 13.50 | ..... | ..... | ..... | 13.50 | ..... | ..... | ..... | .38 | 1.62 |
| 28 | East St. Louis Railway | 19.95 | 9.70 | 9.07 | 1.18 | 19.95 | ..... | ..... | ..... | 19.95 | ..... | ..... | ..... | ..... | ..... |
| 29 | St. Louis and Belleville | 21.49 | 9.65 | 9.65 | 2.19 | 21.49 | ..... | ..... | ..... | 21.49 | ..... | ..... | ..... | ..... | ..... |
| 30 | East St. Louis and Suburban | 53.60 | 42.16 | 10.02 | 1.42 | 53.60 | ..... | ..... | ..... | 53.60 | ..... | 4.62 | 11.03 | 8.83 | ..... |
| 31 | St. Louis and East St. Louis | 2.12 | 1.06 | 1.06 | ..... | 2.12 | ..... | ..... | ..... | 2.12 | ..... | ..... | ..... | ..... | 2.12 |
| 32 | Granite City and St. Louis | 13.25 | 10.25 | 3.00 | ..... | 13.25 | ..... | ..... | ..... | 13.25 | ..... | ..... | 2.00 | 1.00 | 1.94 |
| 33 | Freeport Electric | 7.50 | 6.50 | .75 | .25 | 7.50 | ..... | ..... | ..... | 7.50 | ..... | ..... | 2.00 | ..... | ..... |
| 34 | Galesburg Electric Motor | 17.00 | 16.00 | .40 | .60 | 17.00 | ..... | ..... | ..... | 17.00 | ..... | ..... | ..... | 2.00 | ..... |
| 35 | Chicago, Harvard and Geneva Lake | 11.12 | 11.00 | ..... | .12 | 11.12 | ..... | ..... | ..... | 11.12 | ..... | ..... | ..... | .50 | ..... |
| 36 | Jacksonville Railway | 5.19 | 5.00 | ..... | .19 | 5.19 | ..... | ..... | ..... | 5.19 | ..... | ..... | ..... | ..... | ..... |
| 37 | Kankakee Electric Railway | 8.45 | 7.50 | ..... | .95 | 8.45 | ..... | ..... | ..... | 8.45 | ..... | ..... | ..... | .24 | ..... |
| 38 | North Kankakee Light and Railway | 4.33 | 4.20 | ..... | .13 | 4.33 | ..... | ..... | ..... | 4.33 | ..... | ..... | ..... | ..... | .15 |
| 39 | Lincoln Street Car | 7.05 | 7.00 | ..... | .05 | 7.05 | ..... | ..... | ..... | 7.05 | ..... | ..... | ..... | ..... | ..... |
| 40 | Coal Belt Electric Railway | 17.30 | 17.00 | ..... | .30 | 17.30 | ..... | ..... | ..... | 17.30 | ..... | ..... | 17.30 | 12.00 | ..... |
| 41 | Murphysboro Street Railway | 1.55 | 1.50 | ..... | .05 | ..... | ..... | ..... | 1.55 | 1.55 | ..... | ..... | ..... | ..... | ..... |
| 42 | Ottawa Railway, Light and Power | 8.50 | 8.20 | ..... | .30 | 8.50 | ..... | ..... | ..... | 8.50 | ..... | ..... | 1.00 | ..... | ..... |
| 43 | Peoria and Prospect Heights | 6.25 | 6.00 | ..... | .25 | 6.25 | ..... | ..... | ..... | 6.25 | ..... | .25 | ..... | ..... | ..... |
| 44 | Central Railway | 35.00 | 14.00 | 14.00 | 7.00 | 35.00 | ..... | ..... | ..... | 35.00 | ..... | ..... | 1.50 | 3.50 | ..... |
| 45 | Peoria and Pekin Terminal | 8.68 | 7.73 | ..... | .95 | 8.68 | ..... | ..... | ..... | 8.68 | ..... | 5.50 | ..... | 8.68 | ..... |
| 46 | Quincy Horse Railway | 17.38 | 13.12 | 3.58 | .68 | 17.38 | ..... | ..... | ..... | 17.38 | ..... | ..... | 1.00 | ..... | ..... |
| 47 | Rockford Railway, Light and Power | 23.00 | 20.00 | 3.00 | ..... | 23.00 | ..... | ..... | ..... | 23.00 | ..... | ..... | ..... | ..... | ..... |
| 48 | Rockford and Belvidere | 13.53 | 13.21 | ..... | .32 | 13.53 | ..... | ..... | ..... | 13.53 | ..... | 1.25 | ..... | 12.00 | ..... |
| 49 | Springfield Consolidated | 23.83 | 17.52 | ..... | 6.31 | 23.83 | ..... | ..... | ..... | 23.83 | ..... | ..... | 1.50 | ..... | ..... |
| 50 | Peoples Light and Railway | 5.50 | 5.25 | ..... | .25 | 5.50 | ..... | ..... | ..... | 5.50 | ..... | ..... | ..... | ..... | ..... |
| | INDIANA. | | | | | | | | | | | | | | |
| | Total for state | 646.66 | 523.60 | 99.57 | 23.49 | 643.87 | ..... | ..... | 2.79 | 646.66 | ..... | 22.84 | 67.88 | 150.63 | 27.29 |
| 1 | Brownstown and Ewing | 1.00 | 1.00 | ..... | ..... | ..... | ..... | ..... | 1.00 | 1.00 | ..... | ..... | ..... | ..... | ..... |
| 2 | John S. Crump | 4.40 | 4.25 | ..... | .15 | 4.40 | ..... | ..... | ..... | 4.40 | ..... | ..... | ..... | ..... | ..... |
| 3 | Evansville Electric Railway | 30.50 | 18.82 | 10.18 | 1.50 | 30.50 | ..... | ..... | ..... | 30.50 | ..... | ..... | 5.83 | ..... | .99 |
| 4 | Fort Wayne Traction | 32.00 | 19.35 | 11.00 | 1.65 | 32.00 | ..... | ..... | ..... | 32.00 | ..... | ..... | ..... | 1.00 | 5.00 |
| 5 | Fort Wayne and Southwestern | 26.62 | 26.00 | ..... | .62 | 26.62 | ..... | ..... | ..... | 26.62 | ..... | ..... | ..... | 21.23 | ..... |
| 6 | Hammond, Whiting and East Chicago. | 24.90 | 17.17 | 6.46 | 1.27 | 24.90 | ..... | ..... | ..... | 24.90 | ..... | ..... | ..... | ..... | ..... |
| 7 | Indianapolis Street Railway | 109.86 | 57.39 | 52.39 | .08 | 109.86 | ..... | ..... | ..... | 109.86 | ..... | ..... | ..... | 9.11 | ..... |
| 8 | Broad Ripple Traction | 7.20 | 5.00 | 1.50 | .70 | 7.20 | ..... | ..... | ..... | 7.20 | ..... | ..... | ..... | 2.50 | ..... |
| 9 | Indianapolis, Shelbyville and Southeastern. | 27.55 | 27.00 | ..... | .55 | 27.55 | ..... | ..... | ..... | 27.55 | ..... | 2.50 | 27.55 | 12.00 | ..... |
| 10 | Indianapolis and Eastern | 18.04 | 16.44 | ..... | 1.60 | 18.04 | ..... | ..... | ..... | 18.04 | ..... | 10.20 | ..... | ..... | ..... |
| 11 | Union Traction | 142.92 | 130.40 | 5.17 | 7.35 | 142.92 | ..... | ..... | ..... | 142.92 | ..... | 7.14 | ..... | 61.14 | ..... |
| 12 | Indianapolis, Greenwood and Franklin. | 19.00 | 18.00 | ..... | 1.00 | 19.00 | ..... | ..... | ..... | 19.00 | ..... | 3.00 | ..... | 16.00 | ..... |
| 13 | Jeffersonville City Railway | 1.79 | 1.75 | ..... | .04 | ..... | ..... | ..... | 1.79 | 1.79 | ..... | ..... | ..... | ..... | ..... |
| 14 | Kokomo Railway and Light | 10.75 | 10.50 | ..... | .25 | 10.75 | ..... | ..... | ..... | 10.75 | ..... | ..... | 5.00 | 1.25 | ..... |
| 15 | Lafayette Street Railway | 14.66 | 14.06 | ..... | .60 | 14.66 | ..... | ..... | ..... | 14.66 | ..... | ..... | ..... | ..... | ..... |
| 16 | Logansport Railway | 6.16 | 5.50 | ..... | .66 | 6.16 | ..... | ..... | ..... | 6.16 | ..... | ..... | ..... | ..... | .50 |
| 17 | Logansport, Rochester and Northern | 6.00 | 5.30 | ..... | .70 | 6.00 | ..... | ..... | ..... | 6.00 | ..... | ..... | 6.00 | 1.30 | ..... |

[1] For details see Supplementary Table 1.
[2] For feeder conduit system see Supplementary Table 2.
[3] Includes 2.42 miles duplicated track. (See notes 9 and 13.)
[4] Includes 91.70 miles cable, 108.76 miles third rail, and 1.50 miles storage battery.
[5] 2.83 miles of this track was also operated by animal power.
[6] 6.80 miles of this track was also operated by compressed air.
[7] 6 miles of construction suspended on elevated railroad structure.

CONSTRUCTION, BY COMPANIES: 1902—Continued.

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. Maximum. | Weight of rails per yard. Minimum. | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. (2) | Number. |
| 1,392.50 | 245.12 | 292.68 | ..... | ..... | ..... | 101 | 17,320 | 591 | 218 | 799.06 | 84.28 | 15.91 | ..... | 264.35 | 626.40 | 1,436.70 | 82.60 | |
| 12.25 | ..... | ..... | 70 | 40 | T, girder | ..... | ..... | 1 | ..... | 12.00 | ..... | ..... | 42 | .25 | 11.75 | 8.00 | ..... | 1 |
| 32.00 | 30.96 | ..... | 80 | 40 | Girder, T | 3 | 1,560 | 7 | ..... | 46.34 | 13.50 | ..... | 45 | 2.00 | 57.84 | 130.00 | ..... | 2 |
| 17.00 | 4.00 | ..... | 70 | 45 | T | 3 | 60 | ..... | 6 | 19.00 | .46 | .54 | 52 | .75 | 19.25 | 17.26 | ..... | 3 |
| .50 | 3.20 | ..... | 32 | 32 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 |
| 5.67 | ..... | ..... | 56 | 40 | T | ..... | ..... | 4 | 1 | 1.25 | 4.27 | ..... | 42 | ..... | 5.52 | ..... | ..... | 5 |
| 4.00 | ..... | ..... | 45 | 45 | T | ..... | ..... | ..... | ..... | 3.90 | ..... | ..... | 42 | ..... | 3.90 | ..... | ..... | 6 |
| 2.00 | 1.42 | ..... | 25 | 25 | T | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| 7.50 | 1.50 | ..... | 76 | 40 | T | ..... | ..... | 3 | ..... | 8.00 | ..... | ..... | 53 | ..... | 8.00 | 8.00 | ..... | 8 |
| 222.50 | ..... | 158.09 | 100 | 63 | Girder, T, full groove. | ..... | ..... | 385 | 10 | 86.70 | ..... | ..... | 50 | 66.70 | 20.00 | 432.00 | 12.60 | 9 |
| 305.15 | ..... | 88.49 | 110 | 30 | Girder, T, groove, full groove. | 3 | 5,393 | 30 | ..... | 125.00 | ..... | 7.00 | 45 | [8]126.00 | ..... | 128.00 | 70.00 | 10 |
| 181.16 | ..... | 22.00 | 85 | 30 | Girder, T, groove, full groove. | 4 | 1,800 | 20 | ..... | 91.92 | 1.35 | ..... | 45 | [8]45.77 | 45.00 | 92.00 | ..... | 11 |
| 80.12 | .82 | 24.50 | 100 | 70 | Girder | 1 | 538 | 1 | 51 | 36.68 | 1.40 | 4.04 | 42 | 3.25 | 38.87 | 40.44 | ..... | 12 |
| 18.00 | 10.50 | ..... | 85 | 60 | Girder, T | 3 | 40 | 22 | ..... | 19.00 | ..... | ..... | 45 | 5.00 | 14.00 | 28.00 | ..... | 13 |
| 21.14 | ..... | 4.60 | 80 | 56 | Girder, T | ..... | ..... | 4 | ..... | 10.86 | ..... | ..... | 48 | ..... | 10.86 | 9.50 | ..... | 14 |
| 1.50 | ..... | ..... | 60 | 60 | Full groove | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 15 |
| 43.59 | ..... | ..... | 80 | 68 | T | 2 | 120 | ..... | 8 | 22.19 | ..... | .75 | 45 | 1.75 | 21.19 | 26.00 | ..... | 16 |
| 30.37 | ..... | ..... | 80 | 80 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [11]30.00 | ..... | 17 |
| 21.08 | ..... | ..... | 90 | 90 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [11]45.00 | ..... | 18 |
| 39.34 | ..... | ..... | 80 | 80 | T | 1 | 174 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [11]80.00 | ..... | 19 |
| 38.42 | ..... | ..... | 80 | 56 | Girder | ..... | ..... | 54 | 50 | 19.11 | ..... | ..... | 42 | 1.00 | 18.11 | 44.50 | ..... | 20 |
| 22.50 | 20.50 | ..... | 85 | 65 | T, Girder | 10 | 920 | ..... | ..... | 18.50 | 7.50 | ..... | 46 | 1.75 | 24.25 | 26.00 | ..... | 21 |
| 20.97 | ..... | ..... | 80 | 70 | T | 1 | 125 | ..... | ..... | 1.50 | ..... | ..... | 45 | ..... | 1.50 | [11]10.00 | ..... | 22 |
| 28.76 | 39.13 | ..... | 106 | 60 | Flat, girder, T | 27 | 800 | 11 | 6 | 31.51 | 13.05 | 1.68 | 58 | ..... | 46.19 | 62.90 | ..... | 23 |
| 4.00 | ..... | ..... | 45 | 45 | Girder | ..... | ..... | ..... | ..... | ..... | 3.00 | .50 | 48 | .50 | 3.00 | ..... | ..... | 24 |
| 11.00 | 1.50 | ..... | 60 | 45 | T | ..... | ..... | 5 | ..... | 8.50 | ..... | ..... | 50 | ..... | 8.50 | 9.00 | ..... | 25 |
| 4.00 | 9.50 | ..... | 60 | 56 | T | 2 | 210 | 1 | ..... | 4.00 | 9.00 | ..... | 59 | ..... | 13.00 | 5.50 | ..... | 26 |
| 11.00 | 2.50 | ..... | 62 | 40 | T, girder | ..... | ..... | ..... | 7 | 13.00 | ..... | ..... | 50 | ..... | 13.00 | 5.00 | ..... | 27 |
| 19.95 | ..... | ..... | 92 | 65 | T, girder | ..... | ..... | ..... | 4 | 9.70 | ..... | ..... | 50 | ..... | 9.70 | 14.10 | ..... | 28 |
| ..... | 21.49 | ..... | 65 | 65 | T | 1 | 1,200 | 1 | ..... | 9.65 | ..... | ..... | 48 | ..... | 9.65 | 6.44 | ..... | 29 |
| 11.07 | 42.53 | ..... | 92 | 65 | T, girder | 14 | 1,657 | ..... | 14 | 42.16 | ..... | ..... | 48 | ..... | 42.16 | 44.47 | ..... | 30 |
| 2.12 | ..... | ..... | 45 | 45 | Groove | ..... | ..... | ..... | ..... | 1.06 | ..... | ..... | 50 | 1.06 | ..... | ..... | ..... | 31 |
| 10.28 | 2.97 | ..... | 80 | 48 | T | ..... | ..... | 2 | 8 | 6.29 | 2.51 | 1.45 | 67 | ..... | 10.25 | 5.10 | ..... | 32 |
| 5.00 | 2.50 | ..... | 56 | 56 | T | ..... | ..... | 3 | 1 | 6.50 | ..... | ..... | 50 | ..... | 6.50 | 3.00 | ..... | 33 |
| 12.50 | 4.50 | ..... | 60 | 45 | T | 1 | 150 | 4 | 2 | 10.25 | 5.75 | ..... | 50 | .10 | 15.90 | 6.00 | ..... | 34 |
| 1.00 | 10.12 | ..... | 60 | 60 | T | ..... | ..... | ..... | 1 | 1.00 | 10.00 | ..... | 52 | ..... | 11.00 | 9.00 | ..... | 35 |
| 4.19 | 1.00 | ..... | 60 | 25 | T | ..... | ..... | ..... | ..... | 5.00 | ..... | ..... | 43 | 4.00 | 1.00 | 1.38 | ..... | 36 |
| 8.45 | ..... | ..... | 56 | 40 | Girder, T | ..... | ..... | ..... | 4 | 6.74 | .76 | ..... | 36 | .47 | 7.03 | 3.00 | ..... | 37 |
| 4.20 | .13 | ..... | 57 | 40 | Girder, T | ..... | ..... | ..... | 3 | 2.20 | 2.00 | ..... | 42 | ..... | 4.20 | 4.00 | ..... | 38 |
| 7.05 | ..... | ..... | 45 | 45 | T | ..... | ..... | 1 | 3 | 7.00 | ..... | ..... | 80 | ..... | 7.00 | 7.00 | ..... | 39 |
| 5.00 | 12.30 | ..... | 60 | 56 | T | 6 | 140 | 3 | 2 | 17.00 | ..... | ..... | 45 | ..... | 17.00 | 6.50 | ..... | 40 |
| 1.55 | ..... | ..... | 48 | 48 | T | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 41 |
| 7.50 | 1.00 | ..... | 65 | 40 | T, girder | 3 | 75 | 2 | 2 | 7.20 | 1.00 | ..... | 50 | ..... | 8.20 | 8.50 | ..... | 42 |
| 4.50 | 1.75 | ..... | 70 | 65 | T, girder | 1 | 350 | 1 | ..... | 6.25 | ..... | ..... | 50 | ..... | 6.25 | 5.00 | ..... | 43 |
| 35.00 | ..... | ..... | 80 | 80 | Girder | 3 | 76 | 1 | ..... | 14.00 | ..... | ..... | 50 | ..... | 14.00 | 15.00 | ..... | 44 |
| 1.38 | 7.30 | ..... | 70 | 60 | Girder, T | 4 | 1,319 | 4 | 4 | ..... | 7.73 | ..... | 40 | ..... | 7.73 | 7.73 | ..... | 45 |
| 17.38 | ..... | ..... | 60 | 45 | Girder, T | ..... | ..... | ..... | 1 | 12.12 | 1.00 | ..... | 52 | ..... | 13.12 | 17.38 | ..... | 46 |
| 23.00 | ..... | ..... | 70 | 40 | T | ..... | ..... | 5 | 1 | 20.00 | ..... | ..... | 52 | 3.00 | 17.00 | 15.00 | ..... | 47 |
| 1.53 | 12.00 | ..... | 60 | 60 | T | 8 | 613 | 1 | ..... | 13.21 | ..... | ..... | 45 | ..... | 13.21 | 14.00 | ..... | 48 |
| 23.83 | ..... | ..... | 93 | 35 | Girder, T | ..... | ..... | 12 | ..... | 17.52 | ..... | ..... | 50 | 1.00 | 16.52 | 7.00 | ..... | 49 |
| 5.50 | ..... | ..... | 52 | 52 | Girder | ..... | ..... | ..... | 27 | 5.25 | ..... | ..... | 50 | ..... | 5.25 | ..... | ..... | 50 |
| 388.32 | 278.34 | 32.00 | ..... | ..... | ..... | 142 | 9,699 | 103 | 131 | 357.80 | 135.05 | 28.00 | ..... | 68.56 | 452.29 | 551.38 | ..... | |
| 1.00 | ..... | ..... | 25 | 20 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 4.40 | ..... | ..... | 86 | 30 | T, girder | ..... | ..... | ..... | 6 | 4.25 | ..... | ..... | 50 | ..... | 4.25 | ..... | ..... | 2 |
| 28.00 | 2.50 | ..... | 70 | 30 | T | ..... | ..... | 3 | 8 | 11.82 | 5.00 | 2.00 | 50 | 10.82 | 8.00 | 45.00 | ..... | 3 |
| 20.00 | 12.00 | ..... | 70 | 60 | T | 4 | 200 | 7 | ..... | 13.35 | 1.00 | 5.00 | 53 | 2.35 | 17.00 | 9.85 | ..... | 4 |
| 4.77 | 21.85 | ..... | 56 | 56 | T | 14 | 590 | 5 | ..... | 4.77 | 21.23 | ..... | 50 | 4.77 | 21.23 | 5.00 | ..... | 5 |
| 15.00 | 9.90 | ..... | 80 | 56 | T, girder | ..... | ..... | 18 | 23 | 17.17 | ..... | ..... | 42 | ..... | 17.17 | 22.00 | ..... | 6 |
| 100.75 | 9.11 | 30.00 | 90 | 38 | T, girder | ..... | ..... | 32 | ..... | 36.39 | ..... | 21.00 | 45 | 42.39 | 15.00 | 63.50 | ..... | 7 |
| ..... | 7.20 | ..... | 65 | 56 | T | ..... | ..... | 1 | 1 | 5.00 | ..... | ..... | 40 | ..... | 5.00 | ..... | ..... | 8 |
| 1.00 | 26.55 | ..... | 60 | 60 | T | 28 | 1,250 | 2 | ..... | 4.00 | 23.00 | ..... | 50 | 1.00 | 26.00 | 15.00 | ..... | 9 |
| 1.00 | 17.04 | ..... | 70 | 70 | T | 6 | 110 | 2 | ..... | 1.00 | 15.44 | ..... | 52 | 1.00 | 15.44 | 16.00 | ..... | 10 |
| 69.69 | 73.23 | ..... | 90 | 35 | T, girder, full groove. | 44 | 2,901 | ..... | 67 | 127.40 | 3.00 | ..... | 53 | 1.50 | 128.90 | 250.00 | ..... | 11 |
| 2.00 | 17.00 | ..... | 60 | 60 | T | 3 | 135 | ..... | 2 | 2.00 | 16.00 | ..... | 50 | 1.20 | 16.80 | 17.50 | ..... | 12 |
| 1.79 | ..... | ..... | 35 | 35 | T | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 13 |
| 9.50 | 1.25 | ..... | 70 | 30 | T | 2 | 24 | 1 | 8 | 9.50 | 1.00 | ..... | 40 | .25 | 10.25 | .50 | ..... | 14 |
| 11.06 | 3.60 | ..... | 72 | 56 | Groove, T | 2 | 1,000 | 3 | ..... | 9.06 | 5.00 | ..... | 53 | 1.00 | 13.06 | 10.00 | ..... | 15 |
| 5.00 | 1.16 | ..... | 40 | 40 | T | ..... | ..... | ..... | ..... | 5.50 | ..... | ..... | 52 | ..... | 5.50 | 1.50 | ..... | 16 |
| 4.50 | 1.50 | ..... | 70 | 56 | T | ..... | ..... | ..... | 5 | 4.30 | 1.00 | ..... | 52 | .25 | 5.05 | ..... | ..... | 17 |

[8] 2.50 miles of construction suspended on elevated railroad structure.
[9] Includes 1.62 miles leased to an operating company.
[10] Leased from steam railroad.
[11] Feeders on elevated railroad structure.
[12] Second and third main track.
[13] Includes .80 mile leased to an operating company.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL.

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | VERMONT. | | | | | | | |
| | Total for state | | | | [1] 86.05 | [1] 86.05 | $1,885,000 | $1,835,100 |
| 1 | Barre, Montpelier | Barre and Montpelier Power and Traction Co | July 1901 | June 30, 1902 | 8.82 | 8.82 | 150,000 | 130,000 |
| 2 | Bellows Falls, Saxtons Falls | Bellows Falls and Saxtons River R. R. Co | Aug. 1, 1901 | July 31, 1902 | 6.54 | 6.54 | 100,000 | 100,000 |
| 3 | Brattleboro, West Brattleboro | Brattleboro Street Rwy. Co | Aug. 1, 1901 | July 31, 1902 | 5.00 | 5.00 | 75,000 | 55,500 |
| 4 | Burlington, Winooski | Burlington Traction Co | July 1, 1901 | June 30, 1902 | 11.22 | 11.22 | 200,000 | 200,000 |
| 5 | Rutland | Rutland Street Rwy. Co | July 1, 1901 | June 30, 1902 | 10.45 | 10.45 | 700,000 | 700,000 |
| 6 | St. Albans, Swanton | St. Albans Street Rwy. Co | July 1, 1901 | June 30, 1902 | 13.50 | 13.50 | 200,000 | 200,000 |
| 7 | Springfield; Charlestown (N. H.) | Springfield Electric Rwy. Co | July 1, 1901 | June 30, 1902 | [2] 9.11 | [2] 9.11 | 75,000 | 64,600 |
| 8 | Waterbury, Stowe | Mt. Mansfield Electric Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 11.25 | 11.25 | 300,000 | 300,000 |
| 9 | Winooski, Essex Junction | Military Post Street Rwy. Co | July 1, 1901 | June 30, 1902 | 4.66 | 4.66 | 85,000 | 85,000 |
| | VIRGINIA. | | | | | | | |
| | Total for state | | | | [3] 358.17 | [3] 378.30 | 30,359,000 | 21,812,000 |
| 1 | Charlottesville | Charlottesville City and Suburban Rwy. Co | Sept. 1, 1901 | Aug. 31, 1902 | 3.70 | 3.70 | 100,000 | 68,000 |
| 2 | Danville | Danville Railway and Electric Co | Nov. 1, 1901 | Oct. 31, 1902 | 5.30 | 5.30 | 100,000 | 100,000 |
| 3 | Falls Church, Arlington; Washington, (D. C.). | Washington, Arlington, and Falls Church Rwy. Co. | Jan. 1, 1901 | Dec. 31, 1901 | 11.92 | 11.92 | 100,000 | 100,000 |
| 4 | Lynchburg and vicinity | Lynchburg Traction and Light Co | May 1, 1901 | Apr. 30, 1902 | 15.50 | 15.50 | 1,000,000 | 750,000 |
| 5 | Newport News | Citizens Railway, Light and Power Co | June 1, 1901 | May 31, 1902 | 4.87 | 9.53 | 200,000 | 200,000 |
| 6 | Newport News, Hampton, Phoebus, Old Point Comfort. | Newport News and Old Point Railway and Electric Co. | June 1, 1901 | May 31, 1902 | 35.00 | 39.87 | 1,800,000 | 1,800,000 |
| 7 | Norfolk and vicinity | Bay Shore Terminal Co | May 23, 1902 | June 30, 1902 | 12.00 | 12.00 | 500,000 | 100,000 |
| 8 | Norfolk, Sewall Point | Norfolk and Atlantic Terminal Co | June 1, 1901 | May 31, 1902 | 19.04 | 19.04 | 5,000,000 | 500,000 |
| 9 | Norfolk, Berkley | Berkley Street Rwy. Co | Mar. 1, 1902 | June 1, 1902 | 14.01 | 14.27 | 100,000 | 100,000 |
| 10 | Norfolk, Berkley, Ocean View | Norfolk Railway and Light Co | June 1 1901 | May 31, 1902 | 53.03 | 53.03 | 1,650,000 | 1,650,000 |
| 11 | Petersburg | Southside Railway and Development Co | July 1 1901 | June 30, 1902 | [10] 12.85 | [10] 12.85 | (11) | (11) |
| 12 | Petersburg, Manchester | Richmond and Petersburg Electric Rwy. Co | Feb. 20, 1902 | June 30, 1902 | 21.93 | 23.08 | 1,000,000 | 600,000 |
| 13 | Portsmouth | Old Dominion Rwy. Co | July 1 1901 | June 30, 1902 | 12.21 | 12.21 | [12] 2,000,000 | [12] 535,000 |
| 14 | ....do | Norfolk, Portsmouth and Newport News Co. | June 1, 1901 | May 31, 1902 | 8.63 | 8.63 | 550,000 | 550,000 |
| 15 | Radford | Radford Water Power Co | Oct. 26, 1901 | Oct. 25, 1902 | 2.98 | 2.98 | 50,000 | 50,000 |
| 16 | Richmond | Richmond Traction Co | July 1 1901 | June 30, 1902 | 18.75 | 23.71 | (11) | (11) |
| 17 | ....do | Richmond Passenger and Power Co | July 1 901 | June 30, 1902 | 25.21 | 27.33 | (11) | (11) |
| 18 | Richmond, Petersburg, Manchester. | Virginia Passenger and Power Co. (including West Hampton Park Rwy. Co.). | Apr. 1, 1902 | Mar. 31, 1903 | 37.60 | 37.60 | [15] 15,000,000 | [15] 14,000,000 |
| 19 | Roanoke, Salem, Vinton | Roanoke Railway and Electric Co | Jan. 1, 1902 | Dec. 31, 1902 | 19.04 | 19.04 | 200,000 | 200,000 |
| 20 | Tazewell | Tazewell Street Rwy. Co | Mar. 1, 1901 | Feb. 28, 1902 | 2.00 | 2.00 | 9,000 | 9,000 |
| 21 | Washington (D. C.), Alexandria, Mt. Vernon. | Washington, Alexandria and Mt. Vernon Rwy. Co. | June 1, 1901 | May 31, 1902 | [16] 23.73 | [16] 25.84 | 1,000,000 | 500,000 |
| | WASHINGTON. | | | | | | | |
| | Total for state | | | | 228.93 | 228.93 | 11,115,000 | 11,036,400 |
| 1 | Everett, Lowell | Everett Railway and Electric Co | Sept. 1, 1901 | Aug. 31, 1902 | 9.65 | 9.65 | 200,000 | 200,000 |
| 2 | Olympia, Turnwater | Olympia Light and Power Co | Oct. 1, 1901 | Sept. 30, 1902 | 4.18 | 4.18 | 165,000 | 163,200 |
| 3 | Seattle, Ballard, Georgetown, South Park. | Seattle Electric Co | July 1, 1901 | June 30, 1902 | 83.19 | 83.19 | 8,000,000 | 8,000,000 |
| 4 | Seattle, Renton | Seattle and Renton Rwy. Co | Jan. 1, 1901 | Dec. 31, 1901 | 13.25 | 13.25 | 100,000 | 100,000 |
| 5 | Spokane | Washington Water Power Co | Jan. 1, 1901 | Dec. 31, 1901 | 33.40 | 33.40 | 400,000 | 400,000 |
| 6 | ....do | Spokane and Montrose Motor R. R. Co | Jan. 1, 1902 | Dec. 31, 1902 | 3.15 | 3.15 | 50,000 | 50,000 |
| 7 | Tacoma, Spanaway | Tacoma Railway and Power Co | July 1, 1901 | June 30, 1902 | 69.11 | 69.11 | 2,000,000 | 2,000,000 |
| 8 | Whatcom, Fairhaven, Silver Beach. | Northern Railway and Improvement Co | Sept. 1, 1901 | Aug. 31, 1902 | 13.00 | 13.00 | 200,000 | 123,200 |
| | WEST VIRGINIA. | | | | | | | |
| | Total for state | | | | [18] 93.08 | [18] 93.64 | 4,924,500 | 4,273,600 |
| 1 | Charleston | Kanawha Valley Traction Co | Jan. 1, 1902 | Dec. 31, 1902 | 7.14 | 7.14 | 100,000 | 5,000 |
| 2 | Chester: East Liverpool (Ohio) | East Liverpool and Rock Springs Street Rwy. Co. | Jan. 1, 1902 | Dec. 31, 1902 | [19] 3.26 | [19] 3.82 | 150,000 | 150,000 |
| 3 | Fairmont, Clarksburg | Fairmont and Clarksburg Electric Rwy. Co. | Dec. 1, 1901 | Nov. 30, 1902 | 7.10 | 7.10 | 1,000,000 | 750,000 |
| 4 | Huntington; Ashland (Ky.); Hanging Rock (Ohio). | Camden Interstate Rwy. Co | Jan. 1, 1902 | Dec. 31, 1902 | [20] 30.23 | [20] 30.23 | 1,000,000 | 1,000,000 |
| 5 | Parkersburg, Williamstown; Marietta (Ohio). | Parkersburg, Marietta and Interurban Rwy. Co. | Jan. 1, 1902 | Dec. 31, 1902 | [21] 29.50 | [21] 29.50 | 500,000 | 440,000 |
| 6 | Wellsburg | Wheeling and Wellsburg Rwy. Co | Dec. 1, 1901 | Nov. 30, 1902 | 1.77 | 1.77 | [22] 24,500 | [22] 24,500 |
| 7 | Wheeling, Moundsville; Martins Ferry, Bridgeport, Bellaire, Steubenville, Mingo (Ohio). | Wheeling Traction Co | Jan. 1, 1902 | Oct. 31, 1902 | [24] 44.75 | [23] 44.75 | 2,000,000 | 1,836,300 |
| 8 | Wheeling, Elm Grove | Wheeling and Elm Grove Rwy. Co | Dec. 1, 1901 | Nov. 30, 1902 | 16.25 | 16.25 | 150,000 | 67,800 |

[1] Exclusive of 2.75 miles lying outside of state, but including 8.25 miles in state owned by outside companies. Total owned and operated by companies in state, 80.55 miles.
[2] Includes 2.75 miles in New Hampshire.
[3] Exclusive of 1.80 miles lying outside of state, but including .67 mile in state owned by outside companies. Total owned by companies in state, 359.30 miles, including 3.51 miles leased from steam railroad (see note 10); total operated, 379.43 miles.
[4] Exclusive of $3,284,535, investments other than street railways and electric-light plants owned.
[5] Includes electric-light plant and other investments.
[6] Exclusive of $548,884, investments other than street railways and electric-light plants owned.
[7] Exclusive of $324,583, investments other than street railways and electric-light plants owned.
[8] 2½ per cent on $600,000 for first dividend, and 2½ per cent on $725,000 for second dividend.
[9] Includes investments other than street railways.
[10] Includes 3.51 miles leased from steam railroad.
[11] Included in report of Virginia Passenger and Power Company. (See note 15.)

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $1,870,000 | $1,820,100 | ..... | $8,000 | $15,000 | $15,000 | ..... | $750 | $1,450,000 | $981,600 | ..... | $2,766,700 | $34,348 | |
| 150,000 | 130,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | 230,000 | 26,077 | 1 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 75,000 | 75,000 | 5 | 175,000 | 26,758 | 2 |
| 75,000 | 55,500 | ..... | ..... | ..... | ..... | ..... | ..... | 25,000 | 25,000 | 5 | 80,500 | 16,100 | 3 |
| 200,000 | 200,000 | 4 | 8,000 | ..... | ..... | ..... | ..... | 150,000 | 125,000 | 6 | 325,000 | 28,966 | 4 |
| 700,000 | 700,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 81,600 | 5 | 781,600 | 74,794 | 5 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 150,000 | 5 | 350,000 | 25,926 | 6 |
| 75,000 | 64,600 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | 164,600 | 18,068 | 7 |
| 300,080 | 300,000 | ..... | ..... | ..... | ..... | ..... | ..... | 225,000 | 200,000 | 5 | 500,000 | 44,444 | 8 |
| 70,000 | 70,000 | ..... | ..... | 15,000 | 15,000 | 5 | 750 | 75,000 | 75,000 | 6 | 160,000 | 34,335 | 9 |
| 24,634,000 | 17,087,000 | ..... | 270 | 5,725,000 | 4,725,000 | ..... | 33,125 | 30,167,000 | 25,891,314 | ..... | 47,703,314 | [4]124,845 | |
| 100,000 | 68,000 | ..... | ..... | ..... | ..... | ..... | ..... | 150,000 | 133,314 | 6 | [5]201,314 | 54,409 | 1 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 235,000 | 235,000 | 5 | 335,000 | 63,208 | 2 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 6 | 200,000 | 16,779 | 3 |
| 1,000,000 | 750,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 750,000 | 5 | [5]1,500,000 | [6]61,362 | 4 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 800,000 | 751,000 | 5 | [5]951,000 | [7]128,628 | 5 |
| 1,075,000 | 1,075,000 | ..... | ..... | 725,000 | 725,000 | [8]5 | 33,125 | 4,000,000 | 2,400,000 | 5 | [5]4,200,000 | 120,000 | 6 |
| 500,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 125,000 | 5 | 225,000 | 18,750 | 7 |
| 5,000,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 5 | [9]1,000,000 | 52,521 | 8 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 5 | 600,000 | 42,827 | 9 |
| 1,650,000 | 1,650,000 | ..... | ..... | ..... | ..... | ..... | ..... | 4,000,000 | 3,235,000 | 5,6 | [5]4,885,000 | 92,118 | 10 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | (11) | (11) | ..... | ..... | ..... | 11 |
| 1,000,000 | 600,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 500,000 | 5 | 1,100,000 | 50,160 | 12 |
| 2,000,000 | 535,000 | ..... | ..... | ..... | ..... | ..... | ..... | [12]542,000 | [12]542,000 | 5,6 | 1,077,000 | 88,206 | 13 |
| 550,000 | 550,000 | ..... | ..... | ..... | ..... | ..... | ..... | 500,000 | 500,000 | 5 | 1,050,000 | [13]40,900 | 14 |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | [14]150,000 | 50,336 | 15 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | (11) | (11) | ..... | ..... | ..... | 16 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | (11) | (11) | ..... | ..... | ..... | 17 |
| 10,000,000 | 10,000,000 | ..... | ..... | 5,000,000 | 4,000,000 | ..... | ..... | [15]15,000,000 | [15]14,330,000 | ..... | [15]28,330,000 | 311,661 | 18 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 490,000 | 490,000 | 4,5 | [14]690,000 | 36,239 | 19 |
| 9,000 | 9,000 | 3 | 270 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9,000 | 4,500 | 20 |
| 1,000,000 | 500,000 | ..... | ..... | ..... | ..... | ..... | ..... | 750,000 | 700,000 | 5 | 1,200,000 | 50,569 | 21 |
| 8,115,000 | 8,036,400 | ..... | 37,528 | 3,000,000 | 3,000,000 | ..... | 112,500 | 9,290,000 | 7,747,813 | ..... | [5]18,784,213 | 82,052 | |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 500,000 | 5 | [14]700,000 | 72,539 | 1 |
| 165,000 | 163,200 | 4 | 6,528 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [14]163,200 | 39,043 | 2 |
| 5,000,000 | 5,000,000 | ..... | ..... | 3,000,000 | 3,000,000 | 6 | [17]112,500 | 5,500,000 | 5,018,000 | 5 | [14]13,018,000 | 156,485 | 3 |
| 100,000 | 100,000 | 11 | 11,000 | ..... | ..... | ..... | ..... | 150,000 | 65,000 | 5 | 165,000 | 12,453 | 4 |
| 400,000 | 400,000 | 5 | 20,000 | ..... | ..... | ..... | ..... | 800,000 | 600,000 | 5 | [9]1,000,000 | 29,940 | 5 |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | 40,000 | 40,000 | 6 | 90,000 | 28,571 | 6 |
| 2,000,000 | 2,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,700,000 | 1,424,813 | 5,6 | 3,424,813 | 49,556 | 7 |
| 200,000 | 123,200 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | [5]223,200 | 17,169 | 8 |
| 4,924,500 | 4,273,600 | ..... | 22,000 | ..... | ..... | ..... | ..... | 7,600,000 | 5,308,400 | ..... | [5]9,582,000 | 68,443 | |
| 100,000 | 5,000 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 200,000 | 5 | 205,000 | 28,711 | 1 |
| 150,000 | 150,000 | ..... | ..... | ..... | ..... | ..... | ..... | 150,000 | ..... | 6 | 150,000 | 46,012 | 2 |
| 1,000,000 | 750,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 200,000 | 5 | [14]950,000 | 133,803 | 3 |
| 1,000,000 | 1,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,500,000 | 1,440,000 | 5,6 | [5]2,440,000 | 80,715 | 4 |
| 500,000 | 440,000 | 5 | 22,000 | ..... | ..... | ..... | ..... | 1,000,000 | 600,000 | 5,6 | [14]1,040,000 | 35,254 | 5 |
| 24,500 | 24,500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 24,500 | 13,842 | 6 |
| 2,000,000 | 1,836,300 | ..... | ..... | ..... | ..... | ..... | ..... | 2,500,000 | 2,154,000 | 5,6 | 3,990,300 | 89,169 | 7 |
| 150,000 | 67,800 | ..... | ..... | ..... | ..... | ..... | ..... | 1,250,000 | 714,400 | 5 | [9]782,200 | 48,135 | 8 |

[12] Not reported; obtained from street-railway journals and directories.
[13] Exclusive of $697,031, investments other than street railways.
[14] Includes electric-light plant.
[15] Issued after combination with Southside Railway and Development Company, Richmond Traction Company, and Richmond Passenger and Power Company, subsequent to period covered by Census report; total trackage owned 90.90 miles; also includes electric-light plants.
[16] Includes 1.80 miles in District of Columbia.
[17] Total amount of stock shown was not issued until near the end of the year reported.
[18] Exclusive of 46.92 miles lying outside of state. Total owned by companies in state, 140 miles; total operated, 140.56 miles.
[19] Includes .89 mile in Ohio.
[20] Includes 6.87 miles in Kentucky, and 9.16 miles in Ohio.
[21] Includes 8 miles in Ohio.
[22] Cash investment.
[23] Includes 22 miles in Ohio.

TABLE 93.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

| Number. | STATE AND LOCATION. | Name of company. | PERIOD COVERED BY REPORT. From— | To— | LENGTH, SINGLE-TRACK MILES. Owned. | Operated. | CAPITAL STOCK. Total par value. Authorized. | Issued. |
|---|---|---|---|---|---|---|---|---|
| | WISCONSIN. | | | | | | | |
| | Total for state | | | | [1]446.14 | [1]446.14 | $23,344,000 | $15,178,600 |
| 1 | Appleton, Kaukauna, Menasha, Neenah. | Wisconsin Traction, Light, Heat and Power Co. | Jan. 1,1902 | Sept. 30,1902 | 19.25 | 19.25 | 1,000,000 | 1,000,000 |
| 2 | Ashland | Ashland Light, Power and Street Rwy. Co. | Jan. 1,1901 | Dec. 31,1901 | 7.68 | 7.68 | 84,000 | 84,000 |
| 3 | Eau Claire, Chippewa Falls | Chippewa Valley Electric R. R. Co | Jan. 1,1902 | Dec. 31,1902 | 22.57 | 22.57 | 200,000 | 200,000 |
| 4 | Fond du Lac | Fond du Lac Street Rwy. and Light Co | Jan. 1,1901 | Dec. 31,1901 | 6.27 | 6.27 | 150,000 | 150,000 |
| 5 | Green Bay and vicinity | Fox River Electric Railway and Power Co. | Jan. 1,1902 | Dec. 31,1902 | 17.13 | 17.13 | 150,000 | 145,500 |
| 6 | Janesville | Janesville Street Rwy. Co | Jan. 1,1901 | Dec. 31,1901 | 7.41 | 7.41 | 50,000 | 50,000 |
| 7 | La Crosse | La Crosse City Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 14.44 | 14.44 | 200,000 | 200,000 |
| 8 | La Crosse, Onalaska | La Crosse and Onalaska Street Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 2.67 | 2.67 | 50,000 | 38,000 |
| 9 | Madison, Blooming Grove | Madison Traction Co | Sept. 1,1901 | Aug. 31,1902 | 8.50 | 8.50 | 200,000 | 200,000 |
| 10 | Manitowoc, Two Rivers | Manitowoc and Northern Traction Co | May 1,1902 | Dec. 31,1902 | 8.63 | 8.63 | 100,000 | 100,000 |
| 11 | Marinette | Marinette Gas, Electric Light and Street Rwy. Co. | May 1,1901 | Apr. 30,1902 | 5.40 | 5.40 | 115,000 | 115,000 |
| 12 | Merrill | Merrill Railway and Lighting Co | Jan. 1,1902 | Dec. 31,1902 | 1.55 | 1.55 | 20,000 | 20,000 |
| 13 | Milwaukee, Whitefish Bay, Wauwatosa. | Milwaukee Electric Railway and Light Co. | Jan. 1,1902 | Dec. 31,1902 | 145.50 | 145.50 | 19,500,000 | 11,500,000 |
| 14 | Milwaukee, Racine, Waukesha, Pewaukee. | Milwaukee Light, Heat and Traction Co | Jan. 1,1902 | Dec. 31,1902 | 92.56 | 92.56 | 500,000 | 500,000 |
| 15 | Oshkosh, Neenah | Winnebago Traction Co | Apr. 1,1901 | Mar. 31,1902 | 32.00 | 32.00 | 650,000 | 650,000 |
| 16 | Sheboygan, Sheboygan Falls | Sheboygan Light, Power and Rwy. Co | July 1,1901 | June 30,1902 | 20.00 | 20.00 | 300,000 | 151,100 |
| 17 | Waupaca | Waupaca Electric Light and Rwy. Co | Jan. 1,1902 | Dec. 31,1902 | 4.94 | 4.94 | 75,000 | 75,000 |
| | HAWAII. | | | | | | | |
| | Total for territory | | | | 28.70 | 28.70 | 1,775,000 | 1,450,000 |
| 1 | Honolulu | Hawaiian Tramways Co | July 1,1901 | June 30,1902 | 12.00 | 12.00 | 650,000 | 325,000 |
| 2 | ....do | Honolulu Rapid Transit and Land Co | Jan. 1,1902 | Dec. 31,1902 | 14.20 | 14.20 | 1,000,000 | 1,000,000 |
| 3 | ....do | Pacific Heights Electric Rwy. Co. (Ltd) | Jan. 4,1902 | Dec. 31,1902 | 2.50 | 2.50 | 125,000 | 125,000 |
| | PORTO RICO. | | | | | | | |
| | Total | | | | 12.56 | 12.56 | 648,000 | 571,340 |
| 1 | Mayaguez | Tramway Stock Co | July 1,1901 | June 30,1902 | 3.13 | 3.13 | 48,000 | 27,840 |
| 2 | San Juan, Rio Piedras | San Juan Light and Transit Co | Jan. 1,1902 | Dec. 31,1902 | 9.43 | 9.43 | 600,000 | 543,500 |

[1] Includes 29.64 miles in state owned by outside companies. Total owned and operated by companies in state, 416.50 miles.
[2] Exclusive of $708,756, investments other than street railways and electric-light plants owned.
[3] Includes electric-light plant.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1902—Continued.

| CAPITAL STOCK—continued. | | | | | | | | FUNDED DEBT. | | | Total capital stock and funded debt outstanding. | Capital liabilities per mile of single track owned. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common. | | | | Preferred. | | | | | | | | | |
| Par value. | | Dividends. | | Par value. | | Dividends. | | Amount authorized. | Amount outstanding. | Rates of interest, per cent. | | | |
| Authorized. | Issued. | Rate per cent. | Amount. | Authorized. | Issued. | Rate per cent. | Amount. | | | | | | |
| $18,719,000 | $10,553,700 | ..... | $30,563 | $4,625,000 | $4,624,900 | ..... | $270,000 | $28,281,400 | $13,058,350 | ..... | $28,236,950 | [2]$66,094 | |
| 1,000,000 | 1,000,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 750,000 | 5 | [3]1,750,000 | 90,909 | 1 |
| 84,000 | 84,000 | ..... | ..... | ..... | ..... | ..... | ..... | 78,400 | 59,300 | 5 | [3]143,300 | 18,659 | 2 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 200,000 | 200,000 | 6 | 400,000 | 17,723 | 3 |
| 150,000 | 150,000 | ..... | ..... | ..... | ..... | ..... | ..... | 250,000 | 250,000 | 5 | [4]400,000 | 63,796 | 4 |
| 25,000 | 20,600 | ..... | ..... | 125,000 | 124,900 | ..... | ..... | 150,000 | 120,050 | 5 | 265,550 | 15,502 | 5 |
| 50,000 | 50,000 | ..... | ..... | ..... | ..... | ..... | ..... | 75,000 | 75,000 | 6 | 125,000 | 16,869 | 6 |
| 200,000 | 200,000 | ..... | ..... | ..... | ..... | ..... | ..... | 136,000 | 136,000 | 6 | 336,000 | 23,269 | 7 |
| 50,000 | 38,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 38,000 | 14,232 | 8 |
| 200,000 | 200,000 | 5 | 10,000 | ..... | ..... | ..... | ..... | 300,000 | 200,000 | 5 | 400,000 | 47,059 | 9 |
| 100,000 | 100,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | 100,000 | 5 | 200,000 | 23,175 | 10 |
| 115,000 | 115,000 | ..... | ..... | ..... | ..... | ..... | ..... | 50,000 | 30,000 | 6 | [3]145,000 | 26,852 | 11 |
| 20,000 | 20,000 | ..... | ..... | ..... | ..... | ..... | ..... | 100,000 | ..... | ..... | [3]20,000 | 12,903 | 12 |
| 15,000,000 | 7,000,000 | ..... | ..... | 4,500,000 | 4,500,000 | 6 | 270,000 | 19,500,000 | 8,000,000 | 5 | [4]19,500,000 | 134,021 | 13 |
| 500,000 | 500,000 | 4 | 20,563 | ..... | ..... | ..... | ..... | 5,000,000 | 2,249,000 | 5 | [3]2,749,000 | 29,700 | 14 |
| 650,000 | 650,000 | ..... | ..... | ..... | ..... | ..... | ..... | 1,000,000 | 555,000 | 5 | [5]1,205,000 | 37,656 | 15 |
| 300,000 | 151,100 | ..... | ..... | ..... | ..... | ..... | ..... | 300,000 | 300,000 | 5 | [3]451,100 | 22,555 | 16 |
| 75,000 | 75,000 | ..... | ..... | ..... | ..... | ..... | ..... | 42,000 | 34,000 | 6 | [3]109,000 | 22,065 | 17 |
| 1,566,000 | 1,241,000 | ..... | 19,500 | 209,000 | 209,000 | ..... | ..... | 1,275,000 | 610,000 | ..... | [5]2,060,000 | 71,777 | |
| 650,000 | 325,000 | 6 | 19,500 | ..... | ..... | ..... | ..... | 150,000 | 150,000 | 6 | [5]475,000 | 39,583 | 1 |
| 791,000 | 791,000 | ..... | ..... | 209,000 | 209,000 | ..... | ..... | 1,000,000 | 460,000 | 6 | 1,460,000 | 102,817 | 2 |
| 125,000 | 125,000 | ..... | ..... | ..... | ..... | ..... | ..... | 125,000 | ..... | ..... | 125,000 | 50,000 | 3 |
| 648,000 | 571,340 | ..... | ..... | ..... | ..... | ..... | ..... | 611,800 | 553,800 | ..... | [5]1,125,140 | 89,581 | |
| 48,000 | 27,840 | ..... | ..... | ..... | ..... | ..... | ..... | 11,800 | 11,800 | 5 | 39,640 | 12,665 | 1 |
| 600,000 | 543,500 | ..... | ..... | ..... | ..... | ..... | ..... | 600,000 | 542,000 | 6 | [5]1,085,500 | 115,111 | 2 |

[4] Includes electric-light plant and other investments.
[5] Includes investments other than street railways.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turn-outs. | Over-head trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under track-age rights. | Constructed and opened for operation during year. | On private right of way— |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | UNITED STATES | [2]22,589.47 | 16,651.58 | 5,030.36 | 907.53 | [4]21,302.57 | | [5]1,027.80 | 259.10 | 19,038.33 | 3,551.14 | 560.92 | 1,549.73 | 3,424.96 | 377.11 |
| | ALABAMA. | | | | | | | | | | | | | | |
| | Total for state | 204.72 | 167.70 | 21.75 | 15.27 | 173.69 | | 28.00 | 3.03 | 204.72 | | | 4.50 | 70.08 | .25 |
| 1 | Anniston Electric and Gas | 10.00 | 9.50 | | .50 | 10.00 | | | | 10.00 | | | .50 | 1.50 | |
| 2 | Birmingham Railway, Light and Power. | 110.00 | 85.00 | 14.00 | 11.00 | 89.00 | Steam | 21.00 | | 110.00 | | | 3.00 | 60.00 | |
| 3 | Decatur Street Railway | 3.03 | 3.00 | | .03 | | | | 3.03 | 3.03 | | | | | |
| 4 | Alabama City, Gadsden and Attalla | 6.70 | 6.20 | | .50 | 6.70 | | | | 6.70 | | | | 3.00 | |
| 5 | Huntsville Railway, Light and Power. | 4.62 | 4.50 | | .12 | 4.62 | | | | 4.62 | | | | | .25 |
| 6 | Mobile Light and Railroad | 37.50 | 30.75 | 5.75 | 1.00 | 37.50 | | | | 37.50 | | | | 1.33 | |
| 7 | Montgomery Street Railway | 20.00 | 17.00 | 2.00 | 1.00 | 20.00 | | | | 20.00 | | | | | |
| 8 | Selma Street and Suburban | 5.87 | 5.75 | | .12 | 5.87 | | | | 5.87 | | | 1.00 | .25 | |
| 9 | Tuscaloosa Belt Railway | 7.00 | 6.00 | | 1.00 | | Steam | 7.00 | | 7.00 | | | | 4.00 | |
| | ARIZONA. | | | | | | | | | | | | | | |
| | Total for territory | 17.10 | 15.00 | 1.00 | 1.10 | 12.00 | | | 5.10 | 17.10 | | | | 3.00 | |
| 1 | Phoenix Railway | 12.00 | 10.00 | 1.00 | 1.00 | 12.00 | | | | 12.00 | | | | 3.00 | |
| 2 | Tucson Street Railway | 5.10 | 5.00 | | .10 | | | | 5.10 | 5.10 | | | | | |
| | ARKANSAS. | | | | | | | | | | | | | | |
| | Total for state | 52.49 | 38.01 | 11.99 | 2.49 | 49.83 | | | 2.66 | 52.49 | | | 2.75 | .50 | .60 |
| 1 | Citizens Electric | 3.17 | 2.90 | | .27 | 3.17 | | | | 3.17 | | | | .50 | .60 |
| 2 | Fort Smith Traction | 7.57 | 6.00 | 1.51 | .06 | 7.57 | | | | 7.57 | | | 1.00 | | |
| 3 | Fort Smith and Van Buren | 1.36 | 1.36 | | | 1.36 | | | | 1.36 | | | | | |
| 4 | Hot Springs Street Railroad | 9.28 | 4.82 | 4.34 | .12 | 9.28 | | | | 9.28 | | | | | |
| 5 | Little Rock Traction and Electric | 20.70 | 13.43 | 6.14 | 1.13 | 20.70 | | | | 20.70 | | | | | |
| 6 | Citizens Light and Transit | 7.75 | 7.00 | | .75 | 7.75 | | | | 7.75 | | | 1.75 | | |
| 7 | Texarkana Railway | 2.66 | 2.50 | | .16 | | | | 2.66 | 2.66 | | | | | |
| | CALIFORNIA. | | | | | | | | | | | | | | |
| | Total for state | 829.10 | 551.40 | 268.55 | 9.15 | 665.96 | | [9]120.77 | 42.37 | 829.10 | | 10.85 | 83.59 | 74.48 | 1.98 |
| 1 | Bakersfield and Kern Electric | 2.15 | 2.08 | | .07 | 2.15 | | | | 2.15 | | | | | |
| 2 | Fresno, Belmont and Yosemite | 2.50 | 2.50 | | | | | | 2.50 | 2.50 | | | | | |
| 3 | Fresno Railroad | 2.90 | 2.75 | | .15 | | | | 2.90 | 2.90 | | | | 1.75 | |
| 4 | Nevada County Traction | 5.10 | 5.00 | | .10 | 5.10 | | | | 5.10 | | | | 3.84 | |
| 5 | Los Angeles Electric Incline | .14 | .07 | .07 | | | Cable | .14 | | .14 | | | .14 | | |
| 6 | Los Angeles Railway | 94.82 | 55.82 | 39.00 | | 94.82 | | | | 94.82 | | 4.89 | 4.67 | | |
| 7 | Los Angeles and Pasadena | 31.86 | 20.46 | 9.85 | 1.55 | 31.86 | | | | 31.86 | | 1.88 | .29 | 1.64 | |
| 8 | Los Angeles Pacific Railway | 87.48 | 62.57 | 24.91 | | 66.46 | Steam | 15.07 | 5.95 | 87.48 | | | 51.00 | 55.80 | |
| 9 | Pacific Electric Railway | 11.34 | 8.52 | 2.82 | | 2.18 | Cable | [10]9.16 | | 11.34 | | .34 | | | |
| 10 | Los Angeles Traction | 26.00 | 26.00 | | | 26.00 | | | | 26.00 | | 3.00 | .35 | | |
| 11 | Marysville and Yuba City | 4.23 | 4.13 | | .10 | | | | 4.23 | 4.23 | | | | | |
| 12 | Monrovia Street Railway | 1.50 | 1.50 | | | | | | 1.50 | 1.50 | | | | | |
| 13 | Monterey and Pacific Grove | 4.15 | 4.00 | | .15 | | | | 4.15 | 4.15 | | | | .20 | |
| 14 | Oakland Transit Consolidated | 122.80 | 76.16 | 45.21 | 1.43 | 121.80 | | | 1.00 | 122.80 | | | 4.13 | 2.06 | |
| 15 | Ontario and San Antonio Heights | 8.00 | 7.75 | | .25 | 8.00 | | | | 8.00 | | | | | |
| 16 | Pasadena and Mt. Lowe | 6.64 | 5.83 | | .81 | 6.12 | Cable | .52 | | 6.64 | | | | 5.42 | |
| 17 | Paso Robles Street Car | 2.50 | 2.50 | | | | | | 2.50 | 2.50 | | | | | |
| 18 | Petaluma Street Railway | 1.81 | 1.75 | | .06 | | | | 1.81 | 1.81 | | | | | |
| 19 | Pomona Street Railway | 2.56 | 2.50 | | .06 | | Steam | 2.56 | | 2.56 | | | | | .25 |
| 20 | Redlands Street Railway | 7.27 | 7.18 | | .09 | 7.27 | | | | 7.27 | | | 2.40 | .27 | 1.73 |
| 21 | Riverside and Arlington | 9.52 | 9.19 | | .33 | 9.52 | | | | 9.52 | | | | | |
| 22 | Sacramento Electric, Gas and Rwy. | 23.50 | 13.73 | 8.31 | 1.46 | 23.50 | | | | 23.50 | | | | | |
| 23 | San Bernardino Valley | 7.62 | 7.50 | | .12 | 7.62 | | | | 7.62 | | | 7.50 | .50 | |
| 24 | San Diego Electric Railway | 16.60 | 11.64 | 4.96 | | 16.60 | | | | 16.60 | | | | | |
| 25 | Geary Street, Park and Ocean | 7.68 | 3.84 | 3.84 | | | Cable | 7.68 | | 7.68 | | .74 | | | |
| 26 | California Street Cable | 10.86 | 5.38 | 5.38 | .10 | | Cable | 10.86 | | 10.86 | | | | | |
| 27 | Presidio and Ferries | 9.01 | 4.92 | 4.08 | .01 | | Cable | [12]7.25 | 1.76 | 9.01 | | | | | |
| 28 | United Railroads of San Francisco | 248.95 | 140.41 | 107.63 | .91 | 177.53 | Cable | [13]67.53 | 3.89 | 248.95 | | | 13.11 | | |
| 29 | San Jose Railroad | 15.16 | 12.58 | 2.49 | .09 | 15.16 | | | | 15.16 | | | | | |
| 30 | San Jose and Santa Clara | 18.12 | 13.50 | 4.00 | .62 | 18.12 | | | | 18.12 | | | | 1.50 | |
| 31 | Santa Barbara Consolidated | 8.50 | 8.00 | | .50 | 8.50 | | | | 8.50 | | | | | |
| 32 | Santa Cruz Electric | 5.67 | 5.56 | | .11 | 5.67 | | | | 5.67 | | | | | |
| 33 | East Santa Cruz | 2.85 | 2.80 | .05 | | | | | 2.85 | 2.85 | | | | 1.50 | |
| 34 | Santa Rosa Street Railway | 7.33 | 7.33 | | | | | | 7.33 | 7.33 | | | | | |
| 35 | Stockton Electric | 11.98 | 5.95 | 5.95 | .08 | 11.98 | | | | 11.98 | | | | | |
| | COLORADO. | | | | | | | | | | | | | | |
| | Total for state | 234.53 | 154.17 | 69.36 | 11.00 | 233.28 | | | 1.25 | 232.98 | 1.55 | | 7.97 | 10.87 | |
| 1 | Boulder Railway and Utility | 4.08 | 4.00 | | .08 | 4.08 | | | | 4.08 | | | 1.00 | .04 | |
| 2 | Colorado Springs and Cripple Creek | 11.78 | 10.89 | | .89 | 11.78 | | | | 11.78 | | | | 10.03 | |
| 3 | Colorado Springs Rapid Transit | 29.01 | 20.86 | 6.77 | 1.38 | 29.01 | | | | 27.46 | 1.55 | | | .76 | |
| 4 | Denver, Lakewood and Golden | 6.00 | 5.00 | 1.00 | | 6.00 | | | | 6.00 | | | | | |
| 5 | Denver City Tramway | 143.77 | 85.89 | 49.84 | 8.04 | 143.77 | | | | 143.77 | | | 4.52 | | |
| 6 | Durango Railway and Realty | 2.39 | 2.28 | | .11 | 2.39 | | | | 2.39 | | | | | |
| 7 | Grand Junction (municipal) | 1.25 | 1.25 | | | | | | 1.25 | 1.25 | | | .05 | | |
| 8 | Pueblo Traction and Lighting | 36.25 | 24.00 | 11.75 | .50 | 36.25 | | | | 36.25 | | | 2.40 | .04 | |

[1] For details see Supplementary Table 1.
[2] For feeder conduit system see Supplementary Table 2.
[3] Includes 12.48 miles of track duplicated in reports of different companies. (See Illinois, New York, and Pennsylvania.)
[4] Includes 21,068.42 miles of single trolley and 234.15 miles of double trolley construction; also 12.48 miles of track duplicated in reports of different companies.
[5] Includes miles of track as follows: Cable, 240.69; compressed air, 6.06; conduit trolley, 266.06; steam, 169.61; storage batteries, 2.47; and third rail, 342.91.
[6] Exclusive of Massachusetts, but including track outside city limits for 1 company in Kansas.
[7] Exclusive of Massachusetts, but including track within city limits for 3 companies in Connecticut and 3 in Maine.

## CONSTRUCTION, BY COMPANIES: 1902.

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. Maximum. | Weight of rails per yard. Minimum. | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket. | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. (a) | Number. |
| [9]13,208.24 | [9]6,855.58 | 1,642.68 | | | | 2,748 | 480,912 | 2,514 | 1,967 | 10,220.07 | 5,223.08 | 414.11 | | [8]3,112.58 | [12]2,728.76 | 22,343.22 | 2,411.07 | |
| 124.60 | 80.12 | | | | | 29 | 2,856 | 10 | 67 | 113.63 | 21.82 | 2.25 | | | 137.70 | 178.17 | | |
| 8.50 | 1.50 | | 60 | 30 | T, full groove | 9 | 476 | | 3 | 7.00 | 2.50 | | 42 | | 9.50 | 16.00 | | 1 |
| 50.00 | 60.00 | | 80 | 60 | Girder, half groove, T. | 10 | 2,140 | 6 | 39 | 54.00 | 10.00 | | 53 | | 64.00 | 122.00 | | 2 |
| 3.03 | | | 20 | 16 | T | | | | 1 | | | | | | | | | 3 |
| 3.70 | 3.00 | | 40 | 35 | T | 2 | 120 | | 8 | 1.50 | 4.70 | | 52 | | 6.20 | 6.20 | | 4 |
| 2.00 | 2.62 | | 60 | 60 | T | 2 | 12 | | 2 | 4.50 | | | 52 | | 4.50 | 4.63 | | 5 |
| 29.00 | 8.50 | | 88 | 35 | T, girder | 4 | 60 | 2 | 4 | 28.50 | | 2.25 | 52 | | 30.75 | 26.00 | | 6 |
| 20.00 | | | 90 | 60 | Groove, girder, T. | | | 2 | 6 | 14.00 | 3.00 | | 44 | | 17.00 | 3.00 | | 7 |
| 5.37 | .50 | | 45 | 35 | T | | | | 3 | 4.13 | 1.62 | | 48 | | 5.75 | .34 | | 8 |
| 3.00 | 4.00 | | 60 | 35 | T | 2 | 48 | | 1 | | | | | | | | | 9 |
| 13.50 | 3.60 | | | | | 9 | 225 | | 3 | 7.00 | 3.00 | | | .50 | 9.50 | 4.00 | | |
| 9.00 | 3.00 | | 60 | 30 | T | 6 | 75 | | 2 | 7.00 | 3.00 | | 50 | .50 | 9.50 | 4.00 | | 1 |
| 4.50 | .60 | | 16 | 16 | T | 3 | 150 | | 1 | | | | | | | | | 2 |
| 50.83 | 1.66 | | | | | 8 | 949 | 2 | 3 | 31.31 | 2.40 | 1.80 | | 2.33 | 33.18 | 20.86 | | |
| 3.07 | .10 | | 65 | 35 | T | | | | | .50 | 2.40 | | 65 | | 2.90 | 1.25 | | 1 |
| 7.52 | .05 | | 60 | 45 | T, girder | 1 | 24 | | 1 | 4.80 | | 1.20 | 52 | .80 | 5.20 | 1.00 | | 2 |
| 1.25 | .11 | | 60 | 56 | T | 1 | 20 | | | 1.36 | | | 48 | | 1.36 | .33 | | 3 |
| 8.88 | .40 | | 45 | 25 | T | | | | | 4.22 | | .60 | 52 | | 4.82 | 3.28 | | 4 |
| 20.70 | | | 73 | 70 | Girder, T | 2 | 120 | 2 | | 13.43 | | | 50 | 1.03 | 12.40 | 14.00 | | 5 |
| 6.75 | 1.00 | | 90 | 50 | Girder, T | 4 | 785 | | 2 | 7.00 | | | 53 | .50 | 6.50 | 1.00 | | 6 |
| 2.66 | | | 30 | 20 | T | | | | | | | | | | | | | 7 |
| 667.20 | 161.90 | 110.62 | | | | 57 | 11,913 | 47 | 65 | 339.82 | 58.39 | 24.44 | | 101.33 | 321.32 | 255.48 | | |
| 2.15 | | | 45 | 40 | Girder | | | | | 2.08 | | | 52 | | 2.08 | 3.50 | | 1 |
| 2.50 | | | 20 | 20 | T | | | | 1 | | | | | | | | | 2 |
| 1.00 | 1.90 | | 20 | 20 | T | | | | 2 | | | | | | | | | 3 |
| 1.25 | 3.85 | | 70 | 70 | T | | | | 1 | | 5.00 | | 50 | | 5.00 | | | 4 |
| .14 | | | 16 | 16 | T | | | | | | | | | | | | | 5 |
| 94.82 | | 43.00 | 62 | 38 | T, girder | 4 | 4,400 | 20 | 7 | 55.82 | | | 48 | | 55.82 | 50.00 | | 6 |
| 28.37 | 3.49 | | 60 | 40 | T | 5 | 2,445 | 3 | 9 | 11.71 | 8.75 | | 50 | | 20.46 | 25.00 | | 7 |
| 21.61 | 65.87 | 2.66 | 60 | 40 | T | | | 1 | 1 | 12.78 | 15.65 | 20.65 | 50 | | 49.08 | | | 8 |
| 7.22 | 4.12 | 1.00 | 65 | 25 | T | | | | | 2.18 | | | 50 | | 2.18 | | | 9 |
| 26.00 | | | 70 | 60 | T | | | | 2 | [11] | | | | | | 12.00 | | 10 |
| 1.72 | 2.51 | | 22 | 16 | T, girder | | | | 2 | | | | | | | | | 11 |
| 1.50 | | | 48 | 48 | T | | | | 1 | | | | | | | | | 12 |
| 4.15 | | | 20 | 20 | T | | | | | | | | | | | | | 13 |
| 105.99 | 16.81 | 12.39 | 97 | 35 | T, girder | 2 | 816 | 11 | 8 | 66.43 | 8.73 | | 45 | 52.11 | 23.05 | 71.08 | | 14 |
| 1.75 | 6.25 | | 30 | 30 | T | 2 | 200 | | 2 | 6.00 | 1.75 | | 50 | | 7.75 | 2.25 | | 15 |
| | 6.64 | | 30 | 25 | T | 20 | 1,328 | | | | 5.57 | | 52 | | 5.57 | 6.25 | | 16 |
| 1.75 | .75 | | 15 | 15 | T | | | | | | | | | | | | | 17 |
| 1.81 | | | 38 | 38 | Flat | | | | 1 | | | | | | | | | 18 |
| 2.56 | | | 25 | 25 | T | | | | | | | | | | | | | 19 |
| 6.91 | .36 | | 56 | 45 | T | 3 | 96 | 2 | | 5.02 | 2.16 | | 44 | | 7.18 | 1.03 | | 20 |
| 9.52 | | | 40 | 35 | T | 2 | 40 | | 1 | 9.19 | | | 50 | | 9.19 | 7.00 | | 21 |
| 22.70 | .80 | | 51 | 25 | T, girder | 2 | 50 | | 4 | 13.73 | | | 40 | | 13.73 | 7.50 | | 22 |
| 5.50 | 2.12 | | 45 | 45 | T | 3 | 460 | | 3 | 7.00 | .50 | | 44 | | 7.50 | | | 23 |
| 15.60 | 1.00 | | 60 | 30 | Groove, girder | | | | 4 | 10.00 | 1.64 | | 50 | | 11.64 | 3.00 | | 24 |
| 7.68 | | | 72 | 72 | Girder | | | | | | | | | | | | | 25 |
| 10.86 | | | 38 | 38 | Girder | | | | | | | | | | | | | 26 |
| 9.01 | | | 40 | 40 | Flat, T | | | | | | | | | | | | | 27 |
| 224.84 | 24.11 | 49.32 | 98 | 35 | T, girder | 4 | 625 | 9 | 4 | 98.66 | 2.27 | 3.79 | 50 | 49.22 | 55.50 | 53.06 | | 28 |
| 10.72 | 4.44 | 2.25 | 42 | 35 | T, girder | | | | 3 | 10.58 | 2.00 | | 44 | | 12.58 | 2.56 | | 29 |
| 11.12 | 7.00 | | 35 | 35 | T | 8 | 813 | | 2 | 9.63 | 3.87 | | 50 | | 13.50 | 2.05 | | 30 |
| 8.50 | | | 56 | 45 | T | | | | 1 | 7.50 | .50 | | 50 | | 8.00 | 6.00 | | 31 |
| 5.67 | | | 40 | 40 | T, girder | | | | | 5.56 | | | 50 | | 5.56 | .50 | | 32 |
| 2.00 | .85 | | 45 | 35 | Flat | 2 | 640 | | 1 | | | | | | | | | 33 |
| 5.00 | 2.33 | | 35 | 16 | T, flat | | | | 2 | | | | | | | | | 34 |
| 5.28 | 6.70 | | 40 | 40 | Girder, T | | | 1 | 3 | 5.95 | | | 53 | | 5.95 | 2.70 | | 35 |
| 213.93 | 20.60 | | | | | 26 | 8,094 | 12 | 11 | 140.16 | 12.76 | | | 5.20 | 147.72 | 214.43 | | |
| 4.08 | | | 45 | 30 | T | | | | 2 | 4.00 | | | 70 | | 4.00 | 2.00 | | 1 |
| 1.75 | 10.03 | | 60 | 60 | T | 6 | 944 | | 4 | 2.00 | 8.89 | | 40 | | 10.89 | 11.20 | | 2 |
| 20.46 | 8.55 | | 75 | 30 | T | 11 | 670 | 1 | 2 | 20.86 | | | 53 | 20 | 20.66 | 19.74 | | 3 |
| 6.00 | | | 75 | 48 | T | 7 | 480 | 2 | | 5.00 | | | 52 | | 5.00 | | | 4 |
| 142.39 | 1.38 | | 72 | 30 | T, girder | 2 | 6,000 | 7 | 1 | 82.02 | 3.87 | | 45 | 5.00 | 80.89 | 164.79 | | 5 |
| 1.75 | .64 | | 30 | 30 | T | | | | 1 | 2.28 | | | 52 | | 2.28 | | | 6 |
| 1.25 | | | 30 | 30 | T | | | | | | | | | | | | | 7 |
| 36.25 | | | 80 | 30 | T | | | 2 | 1 | 24.00 | | | 50 | | 24.00 | 13.70 | | 8 |

[8] In addition 15.92 miles supported by elevated railroad structures and by buildings and bridges.
[9] Includes 85.72 miles of cable and 35.05 miles of steam.
[10] Includes 4.45 miles operated by steam.
[11] Not reported.
[12] Includes 1.25 miles operated by steam.
[13] Includes 11.72 miles operated by steam.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turnouts. | Overhead trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— | |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | MISSISSIPPI. | | | | | | | | | | | | | | |
| | Total for state | 25.30 | 23.74 | .57 | .99 | 25.30 | | | | 25.30 | | | 4.52 | .64 | .10 |
| 1 | Greenville Light and Car | 1.00 | .81 | | .19 | 1.00 | | | | 1.00 | | | | | |
| 2 | Jackson Railway, Light and Power | 5.34 | 4.46 | .57 | .31 | 5.34 | | | | 5.34 | | | | .12 | |
| 3 | Meridian Light and Railway | 5.71 | 5.50 | | .21 | 5.71 | | | | 5.71 | | | | .50 | |
| 4 | Natchez Railway and Power | 4.50 | 4.47 | | .03 | 4.50 | | | | 4.50 | | | 4.50 | | |
| 5 | Vicksburg Railroad, Power and Manufacturing | 8.75 | 8.50 | | .25 | 8.75 | | | | 8.75 | | | .02 | .02 | .10 |
| | MISSOURI. | | | | | | | | | | | | | | |
| | Total for state | 758.38 | 453.61 | 296.39 | 8.38 | 719.48 | | 33.00 | 5.90 | 397.49 | 360.89 | 7.10 | 17.73 | 125.56 | 3.31 |
| 1 | Citizens Street Railway | 1.75 | 1.75 | | | | | | 1.75 | 1.75 | | | | | |
| 2 | Carrollton Electric Railway | 1.88 | 1.50 | | .38 | 1.88 | | | | 1.88 | | | .13 | .48 | |
| 3 | Clinton Street Railway | 1.35 | 1.25 | | .10 | | | | 1.35 | 1.35 | | | | | |
| 4 | Hannibal Railway and Electric | 4.25 | 4.00 | | .25 | 4.25 | | | | 4.25 | | | | | .11 |
| 5 | Southwest Missouri Electric Railway | 36.61 | 30.97 | 5.14 | .50 | 36.61 | | | | 36.61 | | | | 15.00 | |
| 6 | Metropolitan | 181.24 | 90.12 | 90.12 | 1.00 | 148.24 | Cable | 33.00 | | 181.24 | | | 14.55 | 10.77 | |
| 7 | Missouri Water, Light and Traction | 4.12 | 3.95 | | .17 | 4.12 | | | | 4.12 | | | | | .20 |
| 8 | St. Joseph Railway, Light, Heat and Power | 35.15 | 22.50 | 12.20 | .45 | 35.15 | | | | 35.15 | | | 1.76 | 3.05 | |
| 9 | St. Louis Transit | 360.89 | 208.99 | 150.66 | 1.24 | 360.89 | | | | | 360.89 | | 1.30 | 40.41 | |
| 10 | St. Louis and Suburban | 36.82 | 24.32 | 12.50 | | 36.82 | | | | 36.82 | | | | 21.26 | |
| 11 | St. Louis and Meramec River | 28.19 | 14.33 | 13.86 | | 28.19 | | | | 28.19 | | 7.10 | | 3.36 | |
| 12 | St. Louis and Kirkwood | 24.97 | 16.86 | 8.11 | | 24.97 | | | | 24.97 | | | | 16.97 | |
| 13 | St. Louis, St. Charles and Western | 16.00 | 12.75 | | 3.25 | 16.00 | | | | 16.00 | | | | 13.00 | 3.00 |
| 14 | Railway and Electric of Sedalia | 6.06 | 5.72 | | .34 | 6.06 | | | | 6.06 | | | | 1.06 | |
| 15 | Kickapoo Transit | 2.80 | 2.60 | | .20 | | | | 2.80 | 2.80 | | | | | |
| 16 | Springfield Traction | 16.30 | 12.00 | 3.80 | .50 | 16.30 | | | | 16.30 | | | | .20 | |
| | MONTANA. | | | | | | | | | | | | | | |
| | Total for state | 63.21 | 55.19 | 7.17 | .85 | 63.21 | | | | 63.21 | | | 1.10 | 7.42 | 1.00 |
| 1 | Anaconda Copper Mining | 6.75 | 6.40 | | .35 | 6.75 | | | | 6.75 | | | | | |
| 2 | Bozeman Street Railway | 2.50 | 2.50 | | | 2.50 | | | | 2.50 | | | | | |
| 3 | Butte Electric Railway | 24.96 | 18.79 | 6.17 | | 24.96 | | | | 24.96 | | | .85 | 3.42 | |
| 4 | Great Falls Street Railway | 11.90 | 10.50 | 1.00 | .40 | 11.90 | | | | 11.90 | | | .25 | | 1.00 |
| 5 | Helena Power and Light | 17.10 | 17.00 | | .10 | 17.10 | | | | 17.10 | | | | 4.00 | |
| | NEBRASKA. | | | | | | | | | | | | | | |
| | Total for state | 113.66 | 66.08 | 42.13 | 5.45 | 110.55 | | | 3.11 | 113.66 | | | 3.00 | 2.33 | |
| 1 | Lincoln Traction | 37.00 | 26.58 | 7.00 | 3.42 | 37.00 | | | | 37.00 | | | | 2.33 | |
| 2 | Nebraska City Street Railway | 3.11 | 3.00 | .10 | .01 | | | | 3.11 | 3.11 | | | | | |
| 3 | Omaha Street Railway | 72.00 | 35.00 | 35.00 | 2.00 | 72.00 | | | | 72.00 | | | 3.00 | | |
| 4 | Metropolitan Cable Railway | 1.55 | 1.50 | .03 | .02 | 1.55 | | | | 1.55 | | | | | |
| | NEW HAMPSHIRE. | | | | | | | | | | | | | | |
| | Total for state | 167.65 | 155.03 | 5.29 | 7.33 | 167.65 | | | | 111.43 | 56.22 | | 5.60 | 4.48 | .07 |
| 1 | Concord Street Railway | 12.71 | 11.61 | | 1.10 | 12.71 | | | | 12.71 | | | .73 | .50 | .07 |
| 2 | Chester and Derry | 7.85 | 7.75 | | .10 | 7.85 | | | | 7.85 | | | | 1.25 | |
| 3 | Exeter, Hampton and Amesbury | 77.83 | 75.38 | | 2.45 | 77.83 | | | | 21.61 | 56.22 | | | .81 | |
| 4 | Keene Electric Railway | 6.52 | 6.28 | | .24 | 6.52 | | | | 6.52 | | | | | |
| 5 | Laconia Street Railway | 8.87 | 8.36 | | .51 | 8.87 | | | | 8.87 | | | | | |
| 6 | Manchester Street Railway | 34.59 | 27.31 | 5.29 | 1.99 | 34.59 | | | | 34.59 | | | 3.00 | 1.20 | |
| 7 | Portsmouth Electric Railway | 19.28 | 18.34 | | .94 | 19.28 | | | | 19.28 | | | 1.87 | .72 | |
| | NEW JERSEY. | | | | | | | | | | | | | | |
| | Total for state | 861.28 | 573.57 | 259.62 | 28.09 | 858.66 | | 1.40 | 1.22 | 623.37 | 237.91 | 7.30 | 40.41 | 97.04 | 1.09 |
| 1 | West Jersey and Seashore | 19.03 | 8.71 | 8.71 | 1.61 | 19.03 | | | | 19.03 | | | | 2.00 | |
| 2 | Bridgeton and Millville | 35.00 | 34.00 | | 1.00 | 35.00 | | | | 35.00 | | | 12.00 | 5.00 | |
| 3 | Brigantine Transportation | 7.75 | 6.50 | 1.13 | .12 | 7.75 | | | | 7.75 | | | | | |
| 4 | Camden, Gloucester and Woodbury | 21.77 | 13.35 | 7.91 | .51 | 21.77 | | | | 21.77 | | 3.01 | | 10.27 | |
| 5 | Camden and Suburban | 67.81 | 40.84 | 26.61 | .36 | 67.81 | | | | 37.70 | 30.11 | | 15.97 | | 1.09 |
| 6 | Cape May, Delaware Bay and Sewells Point | 12.43 | 7.81 | 1.72 | 2.90 | 12.43 | | | | 12.43 | | | | 2.50 | |
| 7 | Elizabeth, Plainfield and Central Jersey | 60.00 | 40.00 | 19.00 | 1.00 | 60.00 | | | | 60.00 | | 1.50 | | | |
| 8 | New Jersey and Hudson River Railway and Ferry | 15.60 | 11.92 | 3.22 | .46 | 15.60 | | | | 15.60 | | | 2.17 | 3.80 | |
| 9 | Jersey City, Hoboken and Paterson | 139.27 | 89.55 | 49.22 | .50 | 139.27 | | | | 139.27 | | 1.29 | 2.50 | 15.79 | |
| 10 | North Jersey Street Railway | 247.58 | 125.83 | 110.32 | 11.43 | 247.58 | | | | 45.51 | 202.07 | | | 4.39 | |
| 11 | Jersey Central Traction | 3.12 | 3.00 | | .12 | 3.12 | | | | 3.12 | | | | | |
| 12 | Monmouth County Electric | 10.16 | 8.56 | | 1.60 | 10.16 | | | | 10.16 | | | | 1.50 | |
| 13 | Atlantic Coast Electric Railroad | 23.68 | 14.36 | 8.63 | .69 | 23.68 | | | | 17.95 | 5.73 | | | 10.06 | |
| 14 | Millville Traction | 13.34 | 12.78 | | .56 | 13.34 | | | | 13.34 | | | | 3.38 | |
| 15 | Mt. Holly Street Railway | 1.22 | 1.20 | | .02 | | | | 1.22 | 1.22 | | | | | |
| 16 | Middlesex and Somerset | 50.00 | 44.30 | 4.30 | 1.40 | 50.00 | | | | 50.00 | | | | 8.50 | |
| 17 | Ocean City Electric Railroad | 7.50 | 7.25 | | .25 | 7.50 | | | | 7.50 | | | | | |
| 18 | Orange and Passaic Valley | 9.89 | 9.14 | | .75 | 9.89 | | | | 9.89 | | | | 1.50 | |
| 19 | South Orange and Maplewood | 5.40 | 2.60 | 2.60 | .20 | 5.40 | | | | 5.40 | | | | 1.90 | |

[1] For details see Supplementary Table 1.

CONSTRUCTION, BY COMPANIES: 1902—Continued.

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. Maximum. | Weight of rails per yard. Minimum. | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. (2) | Number. |
| 22.97 | 2.33 | | | | | 8 | 322 | 1 | 7 | 18.28 | 4.89 | .57 | | | 23.74 | 7.59 | | |
| 1.00 | | | 70 | 70 | T | | | | | .81 | | | 52 | | .81 | .28 | | 1 |
| 4.91 | 1.33 | | 75 | 50 | T | | | | 4 | | 3.89 | .57 | 39 | | 4.46 | 1.23 | | 2 |
| 5.71 | | | 70 | 30 | Girder, T | 5 | 160 | | | 4.50 | 1.00 | | 50 | | 5.50 | 3.08 | | 3 |
| 4.50 | | | 60 | 35 | T | | | | 3 | 4.47 | | | 50 | | 4.47 | 1.00 | | 4 |
| 7.75 | 1.00 | | 56 | 45 | T | 3 | 162 | 1 | | 8.50 | | | 52 | | 8.50 | 2.00 | | 5 |
| 619.61 | 138.77 | 376.07 | | | | 93 | 20,918 | 19 | 64 | 378.39 | 23.38 | 29.24 | | 164.31 | 266.70 | 949.11 | 18.32 | |
| 1.75 | | | 82 | 32 | T | | | | | | | | | | | | | 1 |
| .75 | 1.13 | | 56 | 52 | T | 4 | 475 | | 6 | 1.50 | | | 53 | | 1.50 | 2.22 | | 2 |
| 1.35 | | | 35 | 35 | T | | | | 1 | | | | | | | | | 3 |
| 4.25 | | | 90 | 45 | T, girder | 4 | 72 | | | 4.00 | | | 44 | | 4.00 | 2.00 | | 4 |
| 24.00 | 12.61 | | 80 | 48 | Girder, T | 10 | 1,949 | | 10 | 30.97 | | | 45 | | 30.97 | 128.00 | | 5 |
| 170.50 | 10.74 | 85.00 | 106 | 45 | Girder, T | 19 | 14,137 | 1 | 35 | 70.12 | | 3.00 | 52 | 34.12 | 39.00 | 75.00 | | 6 |
| 4.12 | | | 62 | 52 | T | 1 | 20 | | | 3.95 | | | 52 | | 3.95 | | | 7 |
| 31.87 | 3.28 | | 85 | 60 | Girder, T | 3 | 115 | 5 | | 21.38 | 1.12 | | 44 | | 22.50 | 19.00 | | 8 |
| 316.95 | 43.94 | 283.87 | 117 | 40 | Girder, T | 23 | 2,018 | 7 | | 186.15 | 8.71 | 14.13 | 50 | 111.75 | 97.24 | 545.60 | 18.32 | 9 |
| 15.55 | 21.27 | 7.20 | 94 | 40 | Girder, T | 6 | 285 | 1 | | 20.56 | .70 | 3.06 | 55 | 8.70 | 15.62 | 98.04 | | 10 |
| 21.16 | 7.03 | | 80 | 60 | Girder | 3 | 600 | 4 | | 8.78 | | 5.55 | 55 | 9.24 | 5.09 | 28.34 | | 11 |
| 6.58 | 18.39 | | 80 | 73 | Girder, T | 10 | 520 | 1 | 2 | 13.86 | | 3.00 | 55 | | 16.86 | 20.91 | | 12 |
| | 16.00 | | 80 | 56 | T, girder | 8 | 700 | | | .50 | 11.75 | .50 | 44 | .50 | 12.25 | 16.00 | | 13 |
| 5.00 | 1.06 | | 35 | 30 | T | 2 | 27 | | 2 | 5.72 | | | 37 | | 5.72 | 4.00 | | 14 |
| 1.12 | 1.68 | | 56 | 40 | Girder, T | | | | | | | | | | | | | 15 |
| 14.66 | 1.64 | | 45 | 30 | Girder, T | | | | 8 | 10.90 | 1.10 | | 46 | | 12.00 | 10.00 | | 16 |
| 42.63 | 20.58 | | | | | 7 | 615 | | 19 | 47.76 | 6.93 | .50 | | | 55.19 | 50.64 | | |
| 3.35 | 3.40 | | 60 | 36 | T | 1 | 10 | | 4 | 4.97 | 1.43 | | 53 | | 6.40 | 6.00 | | 1 |
| 2.50 | | | 36 | 36 | T | | | | | 2.00 | .50 | | 50 | | 2.50 | 2.50 | | 2 |
| 12.88 | 12.08 | | 72 | 35 | T | 5 | 525 | | 13 | 14.79 | 3.50 | .50 | 50 | | 18.79 | 14.64 | | 3 |
| 10.90 | 1.00 | | 66 | 40 | Girder, T | | | | 2 | 9.00 | 1.50 | | 44 | | 10.50 | 10.50 | | 4 |
| 13.00 | 4.10 | | 45 | 40 | T, girder | 1 | 50 | | | 17.00 | | | 50 | | 17.00 | 17.00 | | 5 |
| 100.66 | 13.00 | | | | | 15 | 756 | 1 | 15 | 63.08 | | | | 6.00 | 57.08 | 58.00 | | |
| 24.00 | 13.00 | | 72 | 35 | T, girder | 15 | 756 | 1 | 5 | 26.58 | | | 40 | | 26.58 | 40.00 | | 1 |
| 3.11 | | | 40 | 20 | Girder, T | | | | | | | | | | | | | 2 |
| 72.00 | | | 73 | 45 | Girder, T | | | | 9 | 35.00 | | | 50 | 6.00 | 29.00 | 18.00 | | 3 |
| 1.55 | | | 35 | 35 | T | | | | 1 | 1.50 | | | 44 | | 1.50 | | | 4 |
| 81.66 | 85.99 | | | | | 9 | 6,285 | 16 | 9 | 30.78 | 123.25 | 1.00 | | 3.85 | 151.18 | 264.36 | | |
| 12.71 | | | 90 | 35 | Girder, T | | | 1 | | 5.00 | 6.61 | | 52 | 1.00 | 10.61 | 10.00 | | 1 |
| 7.85 | | | 50 | 50 | T | | | | | .50 | 7.25 | | 50 | | 7.75 | 11.00 | | 2 |
| 19.00 | 58.83 | | 60 | 45 | T, groove | 4 | 5,405 | 7 | 3 | | 75.38 | | 52 | | 75.38 | 183.00 | | 3 |
| 1.00 | 5.52 | | 90 | 70 | Girder, T | 2 | 130 | 2 | | .24 | 6.04 | | 50 | | 6.28 | 6.50 | | 4 |
| 8.87 | | | 60 | 40 | T | | | 2 | | 6.36 | 2.00 | | 42 | | 8.36 | 8.36 | | 5 |
| 24.00 | 10.59 | | 90 | 56 | Girder, T | 1 | 50 | 2 | 4 | 17.31 | 9.00 | 1.00 | 52 | 2.20 | 25.11 | 30.00 | | 6 |
| 8.23 | 11.05 | | 90 | 60 | Girder, T | 2 | 700 | 2 | 2 | 1.37 | 16.97 | | 55 | .65 | 17.69 | 15.50 | | 7 |
| 666.48 | 194.80 | 65.20 | | | | 88 | 25,940 | 85 | 28 | 438.19 | 121.59 | 11.84 | | 191.46 | 380.16 | 900.29 | 19.71 | |
| 3.55 | 15.48 | | 86 | 60 | Girder, T | | | | 2 | | | 8.71 | 43 | 8.71 | | 8.71 | | 1 |
| 12.00 | 23.00 | | 60 | 45 | T | 7 | 203 | 1 | 3 | 8.00 | 26.00 | | 53 | | 34.00 | 37.00 | | 2 |
| 7.75 | | | 52 | 52 | T | 1 | 5,280 | | 1 | | 6.50 | | 35 | | 6.50 | 6.50 | | 3 |
| 11.50 | 10.27 | | 70 | 56 | Girder, T | 3 | 2,267 | 3 | 5 | 11.13 | 2.22 | | 42 | | 13.35 | 14.86 | | 4 |
| 37.98 | 29.83 | 4.20 | 90 | 55 | Girder, T | 5 | 310 | 20 | 2 | 40.84 | | | 43 | .62 | 40.22 | 67.00 | | 5 |
| 8.00 | 4.43 | | 56 | 35 | T | | | | | 7.81 | | | 43 | | 7.81 | 3.50 | | 6 |
| 60.00 | | | 90 | 56 | Girder, T | 2 | 1,500 | 1 | 1 | 10.00 | | | 45 | 27.75 | 12.25 | 52.00 | | 7 |
| 11.80 | 3.80 | | 80 | 60 | Girder, T | 9 | 2,537 | | | 9.58 | 2.34 | | 50 | .76 | 11.16 | 47.82 | .15 | 8 |
| 123.48 | 15.79 | 16.00 | 109 | 40 | Girder, T | 5 | 1,150 | 10 | | 87.78 | .48 | 1.29 | 52 | 21.61 | 67.94 | 143.19 | | 9 |
| 247.58 | | 45.00 | 109 | 50 | Girder, groove, T. | 4 | 3,615 | 25 | | 124.58 | 1.25 | | 44 | 120.44 | 5.39 | 271.97 | 19.56 | 10 |
| 3.12 | | | 70 | 60 | Girder, T | 2 | 75 | | | 1.75 | 1.25 | | 42 | | 3.00 | | | 11 |
| 3.00 | 7.16 | | 90 | 65 | Girder, T | 4 | 950 | 5 | | 6.43 | 2.13 | | 42 | .19 | 8.37 | 14.50 | | 12 |
| 23.68 | | | 73 | 60 | Girder | 9 | 4,925 | 3 | 1 | 11.88 | 2.24 | .24 | 44 | 1.33 | 13.03 | 13.60 | | 13 |
| 3.63 | 9.71 | | 90 | 48 | Girder, T | 3 | 364 | | 3 | 2.85 | 9.93 | | 43 | | 12.78 | 11.27 | | 14 |
| 1.22 | | | 50 | 50 | Girder | | | | 1 | | | | | | | | | 15 |
| 41.50 | 8.50 | | 70 | 60 | Girder, T | | | 1 | 2 | 23.84 | 20.46 | | 42 | | 44.30 | 90.40 | | 16 |
| 7.50 | | | 65 | 45 | Girder, T | | | | | 7.12 | .13 | | 43 | | 7.25 | 7.25 | | 17 |
| 9.89 | | | 84 | 54 | Girder, groove, T. | 3 | 60 | 3 | | 8.64 | .50 | | 45 | 4.75 | 4.39 | 12.50 | | 18 |
| 5.40 | | | 96 | 56 | T, girder | 1 | 12 | | | 2.00 | | .60 | 70 | .75 | 1.85 | | | 19 |

[2] For feeder conduit system see Supplementary Table 2.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turnouts. | Overhead trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— | |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | NEW JERSEY—Continued. | | | | | | | | | | | | | | |
| 20 | Raritan Traction | 9.06 | 8.70 | ..... | .36 | 9.06 | ..... | ..... | ..... | 9.06 | ..... | ..... | 5.77 | .87 | ..... |
| 21 | Point Pleasant Traction, Electric Light and Power. | 2.28 | 2.13 | ..... | .15 | 2.28 | ..... | ..... | ..... | 2.28 | ..... | ..... | ..... | ..... | ..... |
| 22 | Newark and Hackensack | 14.87 | 10.97 | 3.49 | .41 | 14.87 | ..... | ..... | ..... | 14.87 | ..... | ..... | ..... | 1.66 | ..... |
| 23 | Trenton Street Railway | 43.60 | 31.17 | 11.74 | .69 | 43.60 | ..... | ..... | ..... | 43.60 | ..... | ..... | 2.00 | 4.00 | ..... |
| 24 | Camden and Trenton | 29.50 | 28.56 | .37 | .57 | 29.50 | ..... | ..... | ..... | 29.50 | ..... | 1.50 | ..... | 5.50 | ..... |
| 25 | Trenton, Lawrenceville and Princeton. | 10.02 | 9.59 | ..... | .43 | 10.02 | ..... | ..... | ..... | 10.02 | ..... | ..... | ..... | 10.02 | ..... |
| 26 | Orange Mountain Traction | 1.40 | .75 | .65 | ..... | ..... | Cable.. | 1.40 | ..... | 1.40 | ..... | ..... | ..... | 1.40 | ..... |
| | NEW MEXICO. | | | | | | | | | | | | | | |
| | Total for territory | 2.10 | 2.00 | ..... | .10 | ..... | ..... | ..... | 2.10 | 2.10 | ..... | ..... | ..... | ..... | ..... |
| 1 | Albuquerque Street Railroad | 2.10 | 2.00 | ..... | .10 | ..... | ..... | ..... | 2.10 | 2.10 | ..... | ..... | ..... | ..... | ..... |
| | NEW YORK. | | | | | | | | | | | | | | |
| | Total for state | [2]2,818.97 | 1,822.31 | 847.41 | 149.25 | [2]2,289.18 | ..... | [5]414.62 | 115.17 | 2,296.31 | 522.66 | 91.20 | 136.87 | 373.05 | 34.21 |
| 1 | Albany and Hudson Rwy. and Power | 42.44 | 37.35 | ..... | 5.09 | 2.66 | 3d rail. | 39.78 | ..... | 42.44 | ..... | 2.06 | ..... | 40.10 | ..... |
| 2 | United Traction | 75.83 | 44.65 | 30.27 | .91 | 74.83 | ..... | ..... | 1.00 | 66.76 | 9.07 | 2.50 | ..... | 2.50 | .25 |
| 3 | Hudson Valley Railway | 110.73 | 100.47 | 3.58 | 6.68 | 110.73 | ..... | ..... | ..... | 110.73 | ..... | 23.37 | 19.60 | 76.78 | ..... |
| 4 | Troy and New England | 10.00 | 8.90 | ..... | 1.10 | 10.00 | ..... | ..... | ..... | 10.00 | ..... | ..... | ..... | 9.90 | ..... |
| 5 | Amsterdam Street Railroad | 5.73 | 5.38 | ..... | .35 | 5.73 | ..... | ..... | ..... | 5.73 | ..... | ..... | ..... | ..... | 1.22 |
| 6 | Auburn City Railway | 12.01 | 10.87 | .40 | .74 | 12.01 | ..... | ..... | ..... | 12.01 | ..... | .50 | ..... | 1.50 | ..... |
| 7 | Auburn Interurban Electric | 7.11 | 6.71 | ..... | .40 | 7.11 | ..... | ..... | ..... | 7.11 | ..... | ..... | ..... | ..... | ..... |
| 8 | Ballston Terminal Railroad | 15.00 | 12.00 | ..... | 3.00 | 15.00 | ..... | ..... | ..... | 15.00 | ..... | ..... | 2.50 | 9.00 | ..... |
| 9 | Binghamton Railway | 36.76 | 28.71 | 6.55 | 1.50 | 36.76 | ..... | ..... | ..... | 36.76 | ..... | ..... | ..... | 2.50 | ..... |
| 10 | International Railway | 222.71 | 145.62 | 59.12 | 17.97 | 222.71 | ..... | ..... | ..... | 199.91 | [6]22.80 | 3.11 | ..... | 11.00 | 23.00 |
| 11 | Crosstown Street Railway | 97.77 | 51.72 | 44.80 | 1.25 | 97.77 | ..... | ..... | ..... | 97.77 | ..... | ..... | ..... | ..... | ..... |
| 12 | Buffalo and Depew | 14.71 | 7.25 | 7.25 | .21 | 14.71 | ..... | ..... | ..... | 14.71 | ..... | ..... | ..... | 5.00 | ..... |
| 13 | Buffalo, Hamburg and Aurora | 13.75 | 13.55 | ..... | .20 | 13.75 | ..... | ..... | ..... | 13.75 | ..... | ..... | ..... | 1.00 | ..... |
| 14 | Ontario Light and Traction | 3.00 | 2.75 | ..... | .25 | 3.00 | ..... | ..... | ..... | 3.00 | ..... | ..... | ..... | ..... | ..... |
| 15 | Catskill Electric Railway | 2.90 | 2.75 | ..... | .15 | 2.90 | ..... | ..... | ..... | 2.90 | ..... | ..... | ..... | ..... | ..... |
| 16 | Cohoes City Railway | 6.35 | 6.12 | ..... | .23 | 6.35 | ..... | ..... | ..... | 6.35 | ..... | ..... | ..... | ..... | ..... |
| 17 | Cortland County Traction | 10.04 | 9.76 | ..... | .28 | 10.04 | ..... | ..... | ..... | 10.04 | ..... | ..... | .13 | 2.77 | ..... |
| 18 | Corning and Painted Post | 5.90 | 5.30 | ..... | .60 | 5.90 | ..... | ..... | ..... | 5.90 | ..... | ..... | ..... | .25 | ..... |
| 19 | Dunkirk and Fredonia | 3.75 | 3.51 | ..... | .24 | 3.75 | ..... | ..... | ..... | 3.75 | ..... | ..... | ..... | ..... | ..... |
| 20 | Dunkirk and Point Gratiot | 3.25 | 3.00 | ..... | .25 | 3.25 | ..... | ..... | ..... | 3.25 | ..... | ..... | .06 | ..... | .40 |
| 21 | Elmira Water, Light and Railroad | 27.24 | 23.15 | 2.30 | 1.79 | 27.24 | ..... | ..... | ..... | 14.17 | 13.07 | ..... | ..... | ..... | .50 |
| 22 | Ocean Electric Railway | 1.04 | 1.02 | ..... | .02 | 1.04 | ..... | ..... | ..... | 1.04 | ..... | ..... | ..... | ..... | ..... |
| 23 | Citizens Street Railway | 7.00 | 6.80 | ..... | .20 | 7.00 | ..... | ..... | ..... | 2.95 | 4.05 | ..... | ..... | ..... | .50 |
| 24 | Fonda, Johnstown and Gloversville | 19.01 | 18.61 | ..... | .40 | 19.01 | ..... | ..... | ..... | 19.01 | ..... | ..... | ..... | 4.01 | ..... |
| 25 | Lake Ontario and Riverside | 1.04 | 1.00 | ..... | .04 | ..... | ..... | ..... | 1.04 | 1.04 | ..... | ..... | ..... | ..... | ..... |
| 26 | Geneva, Waterloo, etc., Traction | 17.75 | 17.00 | ..... | .75 | 17.75 | ..... | ..... | ..... | 17.75 | ..... | ..... | ..... | 1.62 | ..... |
| 27 | Mountain Lake Electric | 4.50 | 4.35 | ..... | .15 | 4.50 | ..... | ..... | ..... | 4.50 | ..... | ..... | ..... | 3.61 | ..... |
| 28 | Bennington and Hoosick Valley | 16.52 | 16.00 | ..... | .52 | 16.52 | ..... | ..... | ..... | 16.52 | ..... | ..... | ..... | 4.00 | ..... |
| 29 | Hornellsville Electric Railway | 5.07 | 4.85 | ..... | .22 | 5.07 | ..... | ..... | ..... | 5.07 | ..... | ..... | ..... | ..... | ..... |
| 30 | Hornellsville and Canisteo | 4.33 | 4.32 | ..... | .01 | 4.33 | ..... | ..... | ..... | 4.33 | ..... | 1.00 | ..... | 3.44 | ..... |
| 31 | Huntington Railroad | 3.19 | 3.04 | ..... | .15 | 3.19 | ..... | ..... | ..... | 3.19 | ..... | ..... | ..... | ..... | ..... |
| 32 | Ithaca Street Railway | 7.68 | 7.33 | ..... | .35 | 7.68 | ..... | ..... | ..... | 7.68 | ..... | ..... | ..... | ..... | 1.28 |
| 33 | Jamestown Street Railway | 20.78 | 16.10 | 4.68 | ..... | 20.78 | ..... | ..... | ..... | 20.78 | ..... | ..... | ..... | .75 | ..... |
| 34 | Kingston Consolidated | 9.16 | 7.98 | ..... | 1.18 | 9.16 | ..... | ..... | ..... | 9.16 | ..... | ..... | ..... | .50 | ..... |
| 35 | Lewiston and Youngstown Frontier | 8.70 | 8.50 | ..... | .20 | 8.70 | ..... | ..... | ..... | 8.70 | ..... | ..... | ..... | 6.75 | ..... |
| 36 | Lima-Honeoye Light and Railroad | 5.16 | 4.46 | ..... | .70 | 5.16 | ..... | ..... | ..... | 5.16 | ..... | ..... | ..... | 4.46 | ..... |
| 37 | Middletown-Goshen Electric | 12.84 | 11.74 | ..... | 1.10 | 12.84 | ..... | ..... | ..... | 12.84 | ..... | ..... | ..... | 6.00 | ..... |
| 38 | New York and Long Island Traction | 9.00 | 8.50 | ..... | .50 | 9.00 | ..... | ..... | ..... | 9.00 | ..... | ..... | 8.50 | ..... | ..... |
| 39 | Orange County Traction | 16.49 | 14.29 | 1.00 | 1.20 | 16.49 | ..... | ..... | ..... | 16.49 | ..... | ..... | ..... | 1.00 | ..... |
| 40 | New Paltz and Poughkeepsie | 9.27 | 9.02 | ..... | .25 | 9.27 | ..... | ..... | ..... | 9.27 | ..... | ..... | ..... | ..... | ..... |
| 41 | Interurban | 198.74 | 100.94 | 97.78 | .02 | 3.68 | Conduit | 131.13 | 63.93 | 1.59 | 197.15 | 2.09 | ..... | ..... | ..... |
| 42 | Central Crosstown | 8.07 | 3.73 | 3.92 | .42 | ..... | ..... | ..... | 8.07 | 4.15 | 3.92 | 5.93 | ..... | ..... | ..... |
| 43 | Fulton Street Railroad | 1.05 | .39 | .66 | ..... | ..... | ..... | ..... | 1.05 | 1.05 | ..... | .84 | ..... | ..... | ..... |
| 44 | Thirty-fourth Street Crosstown | .97 | .48 | .49 | ..... | ..... | Str. bat. | .97 | ..... | .97 | ..... | 4.63 | ..... | ..... | ..... |
| 45 | Twenty-eighth and Twenty-ninth Street Crosstown. | 6.73 | 3.37 | 3.36 | ..... | ..... | ..... | ..... | 6.73 | 6.73 | ..... | .88 | ..... | ..... | ..... |
| 46 | Third Avenue Railroad | 27.24 | 13.28 | 13.28 | .68 | ..... | Conduit | 27.24 | ..... | 27.24 | ..... | .18 | ..... | ..... | ..... |
| 47 | Forty-second Street, Manhattanville and St. Nicholas Avenue. | 25.66 | 12.83 | 12.83 | ..... | ..... | Conduit | 14.27 | 11.39 | 25.66 | ..... | 5.13 | ..... | ..... | ..... |
| 48 | Dry Dock, East Broadway and Battery. | 14.97 | 7.16 | 7.15 | .66 | ..... | ..... | ..... | 14.97 | 14.97 | ..... | 5.46 | ..... | ..... | ..... |
| 49 | Kingsbridge Railway | 6.25 | 3.13 | 3.12 | ..... | ..... | Conduit | 6.25 | ..... | 6.25 | ..... | ..... | 6.25 | ..... | ..... |
| 50 | Southern Boulevard Railroad | 7.00 | 3.50 | 3.50 | ..... | 7.00 | ..... | ..... | ..... | 7.00 | ..... | ..... | ..... | ..... | ..... |
| 51 | Yonkers Railroad | 28.77 | 26.06 | 2.01 | .70 | 28.77 | ..... | ..... | ..... | 28.77 | ..... | 2.50 | 4.50 | ..... | ..... |
| 52 | Union Railway | 71.10 | 39.36 | 31.74 | ..... | 71.10 | ..... | ..... | ..... | 71.10 | ..... | ..... | ..... | ..... | ..... |
| 53 | Tarrytown, White Plains and Mararoneck. | 18.69 | 18.00 | ..... | .69 | 18.69 | ..... | ..... | ..... | 18.69 | ..... | ..... | ..... | ..... | ..... |
| 54 | Westchester Electric Railroad | 31.05 | 25.13 | 5.92 | ..... | 31.05 | ..... | ..... | ..... | 31.05 | ..... | 7.17 | 1.00 | ..... | ..... |
| 55 | Manhattan Railway (elevated) | 117.14 | 37.68 | [7]52.87 | 26.59 | ..... | Steam. | [8]117.14 | ..... | 117.14 | ..... | ..... | 1.49 | 11.79 | .92 |
| 56 | Pelham Park Railroad | 1.50 | 1.40 | ..... | .10 | ..... | ..... | ..... | 1.50 | 1.50 | ..... | ..... | ..... | ..... | ..... |
| 57 | City Island Railroad | 2.00 | 1.80 | ..... | .20 | ..... | ..... | ..... | 2.00 | 2.00 | ..... | ..... | ..... | ..... | ..... |
| 58 | Brooklyn Rapid Transit | 524.34 | 249.19 | 240.52 | 34.63 | [9]452.74 | 3d rail. | [10]71.60 | ..... | 319.42 | 204.92 | 2.37 | 2.77 | 6.25 | ..... |
| 59 | Coney Island and Brooklyn | 48.30 | 24.14 | 22.51 | 1.65 | 48.30 | ..... | ..... | ..... | 26.38 | 21.92 | 2.27 | ..... | ..... | ..... |

[1] For details see Supplementary Table 1.
[2] For feeder conduit system see Supplementary Table 2.
[3] Includes 9.06 miles duplicated track. (See note 3, page 292.)
[4] Includes 1 mile double trolley construction.
[5] Includes 178.89 miles conduit trolley, 130.18 miles third rail, 94.56 miles steam, 3.96 miles cable, 6.06 miles compressed air, and .97 mile storage battery.
[6] Leased from steam railroad and bridge company.

CONSTRUCTION, BY COMPANIES: 1902—Continued.

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. Maximum. | Weight of rails per yard. Minimum. | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. (2) | Number. |
| 9.06 | ..... | ..... | 90 | 60 | Girder, T, groove. | 2 | 400 | 2 | 1 | ..... | 8.70 | ..... | 44 | .55 | 8.15 | 6.25 | ..... | 20 |
| 2.28 | ..... | ..... | 95 | 56 | Girder, T | ..... | ..... | ..... | 1 | 2.13 | ..... | ..... | 40 | ..... | 2.13 | ..... | ..... | 21 |
| 13.21 | 1.66 | ..... | 70 | 60 | Girder, T | ..... | ..... | ..... | ..... | 10.07 | .90 | ..... | 45 | ..... | 10.97 | 20.51 | ..... | 22 |
| 14.60 | 29.00 | ..... | 90 | 50 | Girder, groove, T. | 5 | 510 | 4 | 1 | 18.17 | 12.00 | 1.00 | 50 | 4.00 | 27.17 | 38.96 | ..... | 23 |
| 4.75 | 24.75 | ..... | 80 | 56 | Girder, T | 23 | 1,782 | 4 | 4 | 4.00 | 24.56 | ..... | 40 | ..... | 28.56 | 27.50 | ..... | 24 |
| ..... | 10.02 | ..... | 65 | 65 | T | ..... | ..... | ..... | ..... | 9.59 | ..... | ..... | 40 | ..... | 9.59 | 5.00 | ..... | 25 |
| ..... | 1.40 | ..... | 56 | 56 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 26 |
| 1.75 | .35 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| 1.75 | .35 | ..... | 21 | 21 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 2,129.37 | 689.60 | 222.82 | ..... | ..... | ..... | 410 | 43,795 | 228 | 77 | 1,053.80 | 453.04 | 32.41 | ..... | 485.28 | 1,047.20 | 2,740.49 | 1,155.44 | |
| 4.40 | 38.04 | ..... | 80 | 70 | T, girder | 20 | 2,996 | ..... | ..... | 2.14 | .11 | ..... | 42 | ..... | 2.25 | 360.00 | ..... | 1 |
| 73.08 | 2.75 | ..... | 104 | 47 | T, girder | ..... | ..... | 13 | 3 | 42.90 | .75 | ..... | 42 | 28.71 | 14.94 | 94.39 | ..... | 2 |
| 33.95 | 76.78 | ..... | 65 | 60 | Girder, T | 38 | 2,298 | 4 | ..... | 16.00 | 82.63 | 1.84 | 52 | 1.84 | 98.63 | 59.79 | ..... | 3 |
| ..... | 10.00 | ..... | 65 | 65 | T | 15 | 450 | ..... | ..... | 8.40 | ..... | .50 | 42 | ..... | 8.90 | 8.90 | ..... | 4 |
| 4.16 | 1.57 | ..... | 85 | 70 | Girder, T | 4 | 236 | ..... | ..... | 4.16 | 1.22 | ..... | 52 | ..... | 5.38 | 5.38 | ..... | 5 |
| 9.26 | 2.75 | ..... | 90 | 45 | Girder, T | 2 | 110 | 2 | 2 | 6.87 | 4.00 | ..... | 55 | ..... | 10.87 | 8.50 | ..... | 6 |
| 1.75 | 5.36 | ..... | 90 | 60 | Girder, T | 1 | 41 | ..... | 1 | 1.25 | 5.46 | ..... | 53 | ..... | 6.71 | 20.00 | ..... | 7 |
| 1.50 | 13.50 | ..... | 70 | 60 | T, girder | 6 | 860 | ..... | ..... | 1.00 | 11.00 | ..... | 52 | ..... | 12.00 | 11.00 | ..... | 8 |
| 25.26 | 11.50 | ..... | 94 | 40 | Girder, T | 4 | 112 | 11 | 2 | 24.21 | ..... | 4.50 | 45 | ..... | 28.71 | 24.50 | ..... | 9 |
| 159.39 | 63.32 | 100.94 | 94 | 45 | T, girder | 67 | 6,206 | 32 | 9 | 129.87 | 9.75 | 6.00 | 42 | 42.35 | 103.27 | 187.00 | 64.00 | 10 |
| 96.44 | 1.33 | 12.33 | 94 | 45 | Girder | 17 | 5,945 | 42 | 3 | 47.15 | 4.57 | ..... | 42 | 40.23 | 11.49 | 26.18 | 14.40 | 11 |
| ..... | 14.71 | ..... | 73 | 60 | T, girder | 3 | 1,177 | ..... | 3 | 4.75 | ..... | 2.50 | 45 | ..... | 7.25 | 9.00 | ..... | 12 |
| 8.75 | 5.00 | ..... | 84 | 60 | T, girder | ..... | ..... | ..... | ..... | .55 | 13.00 | ..... | 52 | ..... | 13.55 | 10.00 | ..... | 13 |
| 3.00 | ..... | ..... | 60 | 35 | Girder, T | ..... | ..... | ..... | 1 | 2.00 | .75 | ..... | 45 | ..... | 2.75 | 1.00 | ..... | 14 |
| 2.65 | .25 | ..... | 70 | 70 | T | ..... | ..... | ..... | ..... | 2.75 | ..... | ..... | 42 | ..... | 2.75 | ..... | ..... | 15 |
| 6.35 | ..... | ..... | 90 | 70 | Girder | ..... | ..... | 1 | ..... | 5.62 | .50 | ..... | 42 | ..... | 6.12 | ..... | ..... | 16 |
| 3.00 | 7.04 | ..... | 56 | 56 | Girder, T | 8 | 470 | 1 | 2 | 9.76 | ..... | ..... | 43 | ..... | 9.76 | 5.50 | ..... | 17 |
| 4.27 | 1.63 | ..... | 90 | 56 | Girder, T | 2 | 104 | 1 | ..... | 4.83 | .47 | ..... | 43 | ..... | 5.30 | 3.80 | ..... | 18 |
| 3.75 | ..... | ..... | 60 | 48 | Girder, T | ..... | ..... | 1 | ..... | 3.51 | ..... | ..... | 45 | ..... | 3.51 | 3.00 | ..... | 19 |
| 3.25 | ..... | ..... | 60 | 56 | T | ..... | ..... | ..... | 1 | 2.25 | .75 | ..... | 45 | ..... | 3.00 | 1.75 | ..... | 20 |
| 14.00 | 13.24 | ..... | 90 | 50 | Girder, T | 1 | 100 | 3 | 2 | 20.71 | 2.44 | ..... | 43 | ..... | 23.15 | 8.93 | ..... | 21 |
| 1.04 | ..... | ..... | 85 | 52 | T, girder | ..... | ..... | ..... | ..... | .69 | .33 | ..... | 44 | ..... | 1.02 | ..... | ..... | 22 |
| 4.00 | 3.00 | ..... | 56 | 45 | T, girder | ..... | ..... | 2 | ..... | 3.40 | 3.40 | ..... | 45 | ..... | 6.80 | 6.80 | ..... | 23 |
| 15.00 | 4.01 | ..... | 60 | 45 | Girder, T | 3 | 84 | 1 | 3 | 8.61 | 10.00 | ..... | 52 | ..... | 18.61 | 18.39 | ..... | 24 |
| 1.04 | ..... | ..... | 90 | 40 | Girder | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 25 |
| 8.43 | 9.32 | ..... | 70 | 45 | Girder, T | 2 | 215 | 1 | 2 | 8.43 | 8.57 | ..... | 52 | ..... | 17.00 | 26.76 | ..... | 26 |
| .74 | 3.76 | ..... | 56 | 56 | T | 6 | 60 | ..... | ..... | .15 | 4.20 | ..... | 45 | ..... | 4.35 | 4.00 | ..... | 27 |
| 5.00 | 11.52 | ..... | 60 | 50 | T, girder | 8 | 359 | ..... | 2 | 4.00 | 12.00 | ..... | 42 | ..... | 16.00 | 17.00 | ..... | 28 |
| 5.07 | ..... | ..... | 56 | 40 | T, girder | ..... | ..... | 1 | ..... | 3.85 | 1.00 | ..... | 42 | ..... | 4.85 | 9.69 | ..... | 29 |
| 1.75 | 2.58 | ..... | 40 | 40 | T | 3 | 178 | ..... | ..... | 1.32 | 3.00 | ..... | 42 | ..... | 4.32 | 4.50 | ..... | 30 |
| 1.25 | 1.94 | ..... | 56 | 56 | T | 1 | 30 | ..... | ..... | 3.04 | ..... | ..... | 44 | ..... | 3.04 | 3.04 | ..... | 31 |
| 6.53 | 1.15 | ..... | 62 | 45 | T | 9 | 620 | ..... | 3 | 4.83 | 2.50 | ..... | 45 | .75 | 6.58 | 4.00 | ..... | 32 |
| 16.00 | 4.78 | ..... | 70 | 30 | Girder, T | 11 | 296 | 6 | ..... | 13.10 | 3.00 | ..... | 45 | ..... | 16.10 | 40.00 | 10.00 | 33 |
| 9.16 | ..... | ..... | 80 | 65 | Girder, T | 1 | 1,000 | 5 | ..... | 7.98 | ..... | ..... | 50 | 7.48 | .50 | 10.00 | ..... | 34 |
| ..... | 8.70 | ..... | 75 | 56 | Girder, T | ..... | ..... | ..... | 1 | 2.80 | 5.70 | ..... | 43 | ..... | 8.50 | 8.70 | ..... | 35 |
| 1.00 | 4.16 | ..... | 56 | 44 | T | 1 | 19 | ..... | ..... | .25 | 4.21 | ..... | 45 | ..... | 4.46 | 4.00 | ..... | 36 |
| 3.90 | 8.94 | ..... | 110 | 58 | T, girder | 3 | 250 | 1 | ..... | 10.74 | 1.00 | ..... | 66 | ..... | 11.74 | 16.00 | ..... | 37 |
| 3.00 | 6.00 | ..... | 80 | 80 | Girder | 1 | 10 | 3 | 1 | 3.50 | 5.00 | ..... | 59 | 1.50 | 7.00 | 2.00 | ..... | 38 |
| 6.32 | 10.17 | ..... | 106 | 60 | T, girder, groove. | 15 | 2,415 | ..... | 3 | 5.32 | 7.97 | 1.00 | 44 | 6.32 | 7.97 | 26.50 | ..... | 39 |
| 3.00 | 6.27 | ..... | 70 | 65 | Girder, T | 10 | 869 | ..... | ..... | 1.00 | 8.02 | ..... | 52 | 1.00 | 8.02 | 8.00 | ..... | 40 |
| 198.74 | ..... | 40.00 | 113 | 47 | Girder, full groove, flat. | 1 | 1,800 | ..... | ..... | 3.00 | ..... | ..... | 40 | ..... | 3.00 | ..... | 901.85 | 41 |
| 8.07 | ..... | ..... | 110 | 110 | Girder, flat | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 42 |
| 1.05 | ..... | ..... | 108 | 47 | Girder, flat | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 43 |
| .97 | ..... | ..... | 113 | 47 | Girder, flat | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 44 |
| 6.73 | ..... | ..... | 113 | 47 | Girder, flat | ..... | ..... | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 45 |
| 27.24 | ..... | 10.00 | 113 | 47 | Girder, flat | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 46 |
| 25.66 | ..... | 14.28 | 113 | 47 | Girder, flat | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 47 |
| 14.97 | ..... | ..... | 113 | 47 | Girder, flat | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 48 |
| 6.25 | ..... | 6.25 | 113 | 113 | Girder | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5.00 | 49 |
| 7.00 | ..... | ..... | 90 | 90 | Girder | ..... | ..... | ..... | 1 | 3.50 | ..... | ..... | 58 | 3.50 | ..... | 3.50 | ..... | 50 |
| 16.00 | 12.77 | ..... | 109 | 65 | Girder, trilby, T. | ..... | ..... | 1 | ..... | 26.06 | ..... | ..... | 53 | 6.00 | 20.06 | 30.00 | ..... | 51 |
| 71.10 | ..... | ..... | 90 | 70 | Girder | ..... | ..... | 4 | ..... | 31.86 | ..... | 7.50 | 59 | 39.36 | ..... | 100.00 | ..... | 52 |
| 14.00 | 4.69 | ..... | 90 | 36 | Girder, T | ..... | ..... | 2 | ..... | 18.00 | ..... | ..... | 50 | ..... | 18.00 | 18.00 | ..... | 53 |
| 25.00 | 6.05 | ..... | 90 | 72 | Girder | ..... | ..... | ..... | ..... | 12.13 | 13.00 | ..... | 45 | 17.00 | 8.13 | 70.00 | ..... | 54 |
| 117.14 | ..... | ..... | 90 | 63 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 28.46 | 107.48 | 55 |
| 1.50 | ..... | ..... | 30 | 30 | Full groove | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 56 |
| 2.00 | ..... | ..... | 57 | 30 | Full groove | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 57 |
| 524.34 | ..... | ..... | 99 | 60 | Girder, full groove, T. | 8 | 1,139 | 31 | 2 | 198.00 | 2.00 | ..... | 44 | 193.04 | 6.96 | 737.73 | 45.15 | 58 |
| 48.30 | ..... | ..... | 90 | 60 | Girder, T | ..... | ..... | 2 | ..... | 23.14 | 1.00 | ..... | 45 | [11] 17.37 | ..... | 89.84 | ..... | 59 |

[7] Includes third main track.
[8] Includes 40 miles operated by third rail system.
[9] Includes 1 mile double overhead trolley.
[10] Includes 17.42 miles operated by steam and 3.78 miles by cable.
[11] 6.77 miles of construction supported by elevated structure.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turnouts. | Overhead trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— | |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | NEW YORK—Continued. | | | | | | | | | | | | | | |
| 60 | Van Brunt Street and Erie Basin | 2.50 | 1.25 | 1.25 | ..... | 2.50 | ..... | ..... | ..... | 2.50 | ..... | .50 | ..... | ..... | ..... |
| 61 | New York and Queens County | 74.47 | 40.24 | 28.96 | 5.27 | 74.47 | ..... | ..... | ..... | 74.47 | ..... | ..... | 1.84 | 9.02 | ..... |
| 62 | New York and North Shore | 24.00 | 15.60 | 7.60 | .80 | 24.00 | ..... | ..... | ..... | 24.00 | ..... | .80 | ..... | 4.00 | ..... |
| 63 | Staten Island Midland | 27.54 | 16.04 | 11.50 | ..... | 27.54 | ..... | ..... | ..... | 27.54 | ..... | .10 | ..... | .73 | ..... |
| 64 | Staten Island Electric | 31.02 | 18.85 | 12.13 | .04 | 31.02 | ..... | ..... | ..... | 31.02 | ..... | ..... | ..... | .13 | .20 |
| 65 | Niagara Gorge Railroad | 14.40 | 6.70 | 6.70 | 1.00 | 14.40 | ..... | ..... | ..... | 14.40 | ..... | 1.00 | ..... | 12.65 | ..... |
| 66 | Northport Traction | 2.74 | 2.69 | ..... | .05 | 2.74 | ..... | ..... | ..... | 2.74 | ..... | ..... | 2.74 | ..... | ..... |
| 67 | Ogdensburg Street Railway | 10.00 | 9.50 | ..... | .50 | 10.00 | ..... | ..... | ..... | 10.00 | ..... | ..... | ..... | ..... | ..... |
| 68 | Olean, Rock City and Bradford | 16.55 | 15.85 | ..... | .70 | 16.55 | ..... | ..... | ..... | 16.55 | ..... | 2.31 | ..... | 16.55 | ..... |
| 69 | Olean Street Railway | 13.25 | 12.50 | ..... | .75 | 13.25 | ..... | ..... | ..... | 13.25 | ..... | ..... | ..... | ..... | ..... |
| 70 | Oneida Railway | 1.50 | 1.50 | ..... | ..... | ..... | ..... | ..... | 1.50 | 1.50 | ..... | ..... | ..... | ..... | ..... |
| 71 | Oneonta, Cooperstown and Richfield Springs. | 30.00 | 27.00 | ..... | 3.00 | 30.00 | ..... | ..... | ..... | 30.00 | ..... | ..... | 20.43 | 17.78 | ..... |
| 72 | Westchester Traction | 2.66 | 2.57 | ..... | .09 | 2.66 | ..... | ..... | ..... | 2.66 | ..... | ..... | ..... | ..... | ..... |
| 73 | Oswego Traction | 11.15 | 10.50 | ..... | .65 | 11.15 | ..... | ..... | ..... | 11.15 | ..... | ..... | ..... | .11 | .19 |
| 74 | Peekskill Lighting and Railroad | 10.36 | 10.01 | ..... | .35 | 10.36 | ..... | ..... | ..... | 10.36 | ..... | ..... | 4.51 | .84 | ..... |
| 75 | Penn Yan, Keuka Park and Branchport. | 9.25 | 8.50 | ..... | .75 | 9.25 | ..... | ..... | ..... | 9.25 | ..... | ..... | ..... | 1.50 | ..... |
| 76 | Plattsburg Traction | 6.50 | 6.50 | ..... | ..... | 6.50 | ..... | ..... | ..... | 6.50 | ..... | ..... | ..... | 3.00 | ..... |
| 77 | New York and Stamford | 16.38 | 13.97 | 2.19 | .22 | 16.38 | ..... | ..... | ..... | 16.38 | ..... | .15 | 2.19 | .26 | ..... |
| 78 | Port Jervis Electric, Gas and Railroad. | 5.10 | 4.30 | ..... | .80 | 5.10 | ..... | ..... | ..... | 5.10 | ..... | ..... | ..... | ..... | ..... |
| 79 | Poughkeepsie and Wappingers Falls | 17.33 | 15.60 | 1.14 | .59 | 17.33 | ..... | ..... | ..... | 17.33 | ..... | ..... | ..... | ..... | ..... |
| 80 | Rochester Railway | [3] 104.92 | 58.29 | 44.80 | 1.83 | 104.92 | ..... | ..... | ..... | 86.93 | 17.99 | ..... | 1.00 | ..... | ..... |
| 81 | Rochester and Suburban | 16.30 | 10.54 | 5.50 | .26 | 16.30 | ..... | ..... | ..... | 16.30 | ..... | 3.89 | 1.00 | 2.68 | ..... |
| 82 | Rochester and Sodus Bay | 43.74 | 39.30 | .89 | 3.55 | 43.74 | ..... | ..... | ..... | 38.14 | 5.60 | 3.80 | ..... | 7.39 | 4.39 |
| 83 | Rochester, Charlotte and Manitou | 7.75 | 7.50 | ..... | .25 | 7.75 | ..... | ..... | ..... | 7.75 | ..... | ..... | ..... | 7.50 | ..... |
| 84 | Rome City | 6.06 | 5.50 | .50 | .06 | ..... | C'p air. | 6.06 | ..... | 6.06 | ..... | ..... | ..... | ..... | ..... |
| 85 | Schenectady Railway | 36.12 | 21.97 | 13.28 | .87 | 36.12 | ..... | ..... | ..... | 36.12 | ..... | 6.66 | 26.00 | ..... | ..... |
| 86 | Sea Cliff Incline Cable | .18 | .09 | .09 | ..... | ..... | Cable. | .18 | ..... | .18 | ..... | ..... | ..... | ..... | .18 |
| 87 | Southfield Beach Railroad | 4.00 | 1.88 | 1.87 | .25 | 4.00 | ..... | ..... | ..... | 4.00 | ..... | ..... | ..... | 4.00 | ..... |
| 88 | Syracuse Rapid Transit | 68.16 | 43.40 | 21.06 | 3.70 | 68.16 | ..... | ..... | ..... | 59.61 | 8.55 | ..... | 3.78 | ..... | ..... |
| 89 | Syracuse and Suburban | 14.31 | 11.94 | 1.98 | .39 | 14.31 | ..... | ..... | ..... | 14.31 | ..... | ..... | ..... | .80 | ..... |
| 90 | Syracuse, Lakeside and Baldwinsville. | 23.03 | 14.24 | 8.00 | .79 | 23.03 | ..... | ..... | ..... | 23.03 | ..... | ..... | ..... | 12.00 | ..... |
| 91 | Utica and Mohawk Valley | 76.20 | 57.03 | 16.36 | 2.81 | 74.21 | ..... | ..... | 1.99 | 62.58 | [4] 13.62 | ..... | 20.58 | 31.00 | ..... |
| 92 | Black River Traction | 10.47 | 10.00 | ..... | .47 | 10.47 | ..... | ..... | ..... | 10.47 | ..... | ..... | ..... | 3.50 | ..... |
| 93 | Elmira and Seneca Lake | 16.41 | 16.13 | ..... | .28 | 16.41 | ..... | ..... | ..... | 16.41 | ..... | ..... | ..... | 12.63 | ..... |
| 94 | Buffalo, Gardenville and Ebenezer | 4.67 | 4.50 | ..... | .17 | 4.67 | ..... | ..... | ..... | 4.67 | ..... | ..... | ..... | ..... | 1.21 |
| 95 | Hamburg Railway | 10.33 | 9.83 | ..... | .50 | 10.33 | ..... | ..... | ..... | 10.33 | ..... | ..... | 6.00 | 8.50 | ..... |
| 96 | Buffalo and Williamsville | 4.54 | 4.50 | ..... | .04 | 4.54 | ..... | ..... | ..... | 4.54 | ..... | ..... | ..... | ..... | ..... |
| | NORTH CAROLINA. | | | | | | | | | | | | | | |
| | Total for state | 46.32 | 39.44 | 3.21 | 3.67 | 46.32 | ..... | ..... | ..... | 46.07 | .25 | 12.44 | 1.87 | 4.74 | 5.99 |
| 1 | Asheville Electric | 5.87 | 5.30 | ..... | .57 | 5.87 | ..... | ..... | ..... | 5.87 | ..... | ..... | ..... | 1.50 | ..... |
| 2 | Asheville Street Railroad | 7.64 | 7.30 | ..... | .34 | 7.64 | ..... | ..... | ..... | 7.64 | ..... | .44 | ..... | ..... | 2.74 |
| 3 | Asheville and Craggy Mountain | 3.24 | 2.64 | ..... | .60 | 3.24 | ..... | ..... | ..... | 3.24 | ..... | 12.00 | .40 | 3.24 | ..... |
| 4 | Charlotte Railway, Light and Power | 11.29 | 7.97 | 3.21 | .11 | 11.29 | ..... | ..... | ..... | 11.29 | ..... | ..... | 1.47 | ..... | ..... |
| 5 | Raleigh Electric | 4.50 | 4.25 | ..... | .25 | 4.50 | ..... | ..... | ..... | 4.25 | [5] .25 | ..... | ..... | ..... | 1.25 |
| 6 | Consolidated Railways, Light and Power. | 4.65 | 4.34 | ..... | .31 | 4.65 | ..... | ..... | ..... | 4.65 | ..... | ..... | ..... | ..... | ..... |
| 7 | Fries Manufacturing and Power | 9.13 | 7.64 | ..... | 1.49 | 9.13 | ..... | ..... | ..... | 9.13 | ..... | ..... | ..... | ..... | 2.00 |
| | OHIO. | | | | | | | | | | | | | | |
| | Total for state | 2,353.43 | 1,858.85 | 423.66 | 70.92 | [6] 2,351.32 | ..... | .61 | 1.50 | 2,101.21 | 252.22 | 116.33 | 324.70 | 632.12 | 4.35 |
| 1 | Ashtabula Rapid Transit | 5.75 | 5.75 | ..... | ..... | 5.75 | ..... | ..... | ..... | 5.75 | ..... | ..... | .76 | ..... | ..... |
| 2 | Pennsylvania and Ohio | 27.75 | 27.00 | ..... | .75 | 27.75 | ..... | ..... | ..... | 27.75 | ..... | ..... | 10.00 | ..... | ..... |
| 3 | Ohio Central Traction | 17.02 | 17.00 | ..... | .02 | 17.02 | ..... | ..... | ..... | 17.02 | ..... | ..... | ..... | 4.00 | ..... |
| 4 | Consolidated | 2.00 | 2.00 | ..... | ..... | 2.00 | ..... | ..... | ..... | 2.00 | ..... | ..... | 2.00 | ..... | ..... |
| 5 | Stark Electric | 26.97 | 26.14 | .25 | .58 | 26.97 | ..... | ..... | ..... | 26.97 | ..... | ..... | 4.00 | 19.48 | ..... |
| 6 | Canton-Akron | 50.17 | 46.01 | 3.03 | 1.13 | 50.17 | ..... | ..... | ..... | 50.17 | ..... | ..... | 26.31 | 10.73 | ..... |
| 7 | Chillicothe Electric Railroad, Light and Power | 5.11 | 5.00 | ..... | .11 | 5.11 | ..... | ..... | ..... | 5.11 | ..... | ..... | ..... | ..... | ..... |
| 8 | Cincinnati Traction | 212.96 | 117.88 | 95.08 | ..... | [7] 211.46 | ..... | ..... | 1.50 | ..... | 212.96 | ..... | 12.00 | ..... | ..... |
| 9 | Price Hill Incline Plane | .61 | .15 | [8] .46 | ..... | ..... | Cable. | .61 | ..... | .61 | ..... | ..... | ..... | .61 | ..... |
| 10 | Mill Creek Valley | 32.50 | 21.00 | 11.25 | .25 | 32.50 | ..... | ..... | ..... | 32.50 | ..... | 4.00 | ..... | ..... | ..... |
| 11 | Cincinnati, Dayton and Toledo | 78.35 | 69.67 | 5.90 | 2.78 | 78.35 | ..... | ..... | ..... | 78.35 | ..... | .50 | ..... | 8.00 | 2.00 |
| 12 | Cincinnati, Lawrenceburg and Aurora. | 39.25 | 32.75 | 6.00 | .50 | 39.25 | ..... | ..... | ..... | 39.25 | ..... | ..... | ..... | 4.00 | ..... |
| 13 | Cleveland Electric Railway | 142.46 | 69.31 | 64.86 | 8.29 | 142.46 | ..... | ..... | ..... | 137.34 | 5.12 | .86 | ..... | .76 | .48 |
| 14 | Cleveland City Railway | [9] 94.58 | 47.87 | 43.44 | 3.27 | 94.58 | ..... | ..... | ..... | 94.58 | ..... | ..... | ..... | ..... | ..... |
| 15 | Cleveland, Elyria and Western | 68.00 | 62.00 | 4.00 | 2.00 | 68.00 | ..... | ..... | ..... | 68.00 | ..... | 8.50 | 6.00 | 20.00 | ..... |
| 16 | Eastern Ohio Traction | 90.00 | 85.00 | ..... | 5.00 | 90.00 | ..... | ..... | ..... | 90.00 | ..... | 11.00 | ..... | 63.00 | ..... |
| 17 | Cleveland, Painesville and Eastern | 43.26 | 36.87 | 4.99 | 1.40 | 43.26 | ..... | ..... | ..... | 43.26 | ..... | ..... | ..... | 5.00 | ..... |
| 18 | Northern Ohio Traction | 96.85 | 75.94 | 19.31 | 1.60 | 96.85 | ..... | ..... | ..... | 96.85 | ..... | 13.40 | 12.29 | 12.30 | ..... |
| 19 | Columbus Railway | 106.43 | 61.53 | 41.57 | 3.33 | 106.43 | ..... | ..... | ..... | 106.43 | ..... | ..... | 8.45 | ..... | ..... |
| 20 | Columbus, London and Springfield | 72.60 | 63.60 | 5.00 | 4.00 | 72.60 | ..... | ..... | ..... | 58.60 | 14.00 | ..... | 50.00 | 38.00 | ..... |
| 21 | Columbus, Buckeye Lake and Newark. | 43.50 | 39.50 | ..... | 4.00 | 43.50 | ..... | ..... | ..... | 43.50 | ..... | 1.56 | 30.00 | 3.00 | ..... |
| 22 | City Railway | 24.28 | 12.14 | 12.14 | ..... | 24.28 | ..... | ..... | ..... | 24.28 | ..... | 2.27 | ..... | ..... | ..... |

[1] For details see Supplementary Table 1.
[2] For feeder conduit system see Supplementary Table 2.
[3] Includes 9.06 miles leased from an operating company.
[4] Leased from steam railroad.

CONSTRUCTION, BY COMPANIES: 1902—Continued.

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. Maximum. | Weight of rails per yard. Minimum. | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. (2) | Number. |
| 2.50 | ..... | ..... | 94 | 94 | Groove, girder, T. | ..... | ..... | ..... | ..... | 1.25 | ..... | ..... | 75 | 1.25 | ..... | ..... | ..... | 60 |
| 74.47 | ..... | ..... | 93 | 77 | Full groove | 1 | 60 | 4 | ..... | 38.59 | 1.65 | ..... | 42 | 40.24 | ..... | 105.56 | ..... | 61 |
| 19.10 | 4.90 | ..... | 70 | 60 | Girder | 5 | 166 | 3 | ..... | 11.60 | 4.00 | ..... | 45 | ..... | 15.60 | 40.00 | ..... | 62 |
| 27.54 | ..... | 6.00 | 70 | 65 | T, Girder | ..... | ..... | 2 | ..... | 10.80 | 5.24 | ..... | 54 | ..... | 16.04 | 17.00 | ..... | 63 |
| 31.02 | ..... | 31.02 | 90 | 85 | Girder | 1 | 600 | 6 | ..... | 10.70 | 8.15 | ..... | 50 | ..... | 18.85 | 41.00 | ..... | 64 |
| ..... | 14.40 | ..... | 65 | 65 | T | 4 | 335 | ..... | 1 | 6.70 | ..... | ..... | 45 | .10 | 6.60 | 6.70 | ..... | 65 |
| .89 | 1.85 | ..... | 56 | 56 | T | ..... | ..... | ..... | ..... | 1.70 | .99 | ..... | 44 | ..... | 2.69 | ..... | ..... | 66 |
| 10.00 | ..... | ..... | 52 | 48 | T | ..... | ..... | 1 | ..... | 8.50 | 1.00 | ..... | 52 | ..... | 9.50 | 7.00 | ..... | 67 |
| ..... | 16.55 | ..... | 55 | 40 | T | 5 | 900 | ..... | ..... | .70 | 15.15 | ..... | 48 | ..... | 15.85 | 32.00 | ..... | 68 |
| 4.06 | 9.19 | ..... | 60 | 50 | T | 2 | 110 | 3 | 3 | 2.00 | 10.50 | ..... | 53 | ..... | 12.50 | 8.00 | ..... | 69 |
| 1.50 | ..... | ..... | 47 | 45 | T | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 70 |
| 3.50 | 26.50 | ..... | 90 | 60 | Girder, T | 8 | 144 | ..... | ..... | 26.00 | 1.00 | ..... | 52 | ..... | 27.00 | 30.00 | ..... | 71 |
| 2.62 | .04 | ..... | 48 | 48 | T | ..... | ..... | ..... | ..... | 1.29 | 1.28 | ..... | 50 | ..... | 2.57 | .75 | ..... | 72 |
| 6.50 | 4.65 | ..... | 109 | 35 | Girder, T, groove. | 5 | 1,100 | 4 | 2 | 5.50 | 5.00 | ..... | 35 | ..... | 10.50 | 6.50 | ..... | 73 |
| 4.09 | 6.27 | ..... | 56 | 56 | T | ..... | ..... | 1 | ..... | 2.41 | 7.60 | ..... | 42 | ..... | 10.01 | 8.50 | ..... | 74 |
| 1.00 | 8.25 | ..... | 70 | 60 | T | 3 | 56 | ..... | ..... | .50 | 8.00 | ..... | 40 | ..... | 8.50 | 4.00 | ..... | 75 |
| 3.50 | 3.00 | ..... | 50 | 50 | T | ..... | ..... | ..... | 2 | 3.50 | 3.00 | ..... | 52 | ..... | 6.50 | .50 | ..... | 76 |
| 12.15 | 4.23 | ..... | 101 | 65 | Girder, T | 1 | 25 | 2 | ..... | 13.25 | .72 | ..... | 52 | ..... | 13.97 | 13.97 | ..... | 77 |
| 5.10 | ..... | ..... | 60 | 60 | Girder, T | ..... | ..... | 1 | 2 | 2.30 | 2.00 | ..... | 40 | ..... | 4.30 | 4.30 | ..... | 78 |
| 10.00 | 7.33 | ..... | 90 | 60 | Girder, T | ..... | ..... | ..... | 2 | 6.60 | 9.00 | ..... | 50 | ..... | 15.60 | 22.00 | ..... | 79 |
| 86.93 | 17.99 | 2.00 | 107 | 40 | Girder, T, full groove. | 4 | 207 | 2 | 1 | 27.31 | 27.10 | 3.88 | 50 | 5.00 | 53.29 | 39.06 | 7.56 | 80 |
| 2.41 | 13.89 | ..... | 107 | 40 | Girder, T | ..... | ..... | ..... | ..... | 1.00 | 5.04 | ..... | 53 | ..... | 6.04 | 5.25 | ..... | 81 |
| ..... | 43.74 | ..... | 60 | 60 | T | 17 | 834 | ..... | ..... | ..... | 34.86 | 4.44 | 50 | ..... | 39.30 | 16.00 | ..... | 82 |
| .25 | 7.50 | ..... | 40 | 40 | T | 6 | 2,400 | ..... | 1 | ..... | 7.25 | .25 | 53 | ..... | 7.50 | 7.00 | ..... | 83 |
| 6.06 | ..... | ..... | 65 | 65 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 84 |
| 9.25 | 26.87 | ..... | 90 | 52 | Girder, T | ..... | ..... | 2 | 1 | 20.85 | 1.12 | ..... | 53 | ..... | 21.97 | 6.90 | ..... | 85 |
| .18 | ..... | ..... | 25 | 25 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 86 |
| ..... | 4.00 | ..... | 70 | 70 | T | 1 | 157 | ..... | ..... | 1.88 | ..... | ..... | 50 | ..... | 1.88 | ..... | ..... | 87 |
| 68.16 | ..... | ..... | 117 | 60 | Girder, T, full groove. | 15 | 862 | 11 | 3 | 29.40 | 14.00 | ..... | 45 | 27.00 | 16.40 | 44.82 | ..... | 88 |
| 1.98 | 12.33 | ..... | 90 | 60 | Girder, T, half groove. | 6 | 786 | ..... | ..... | 2.00 | 9.94 | ..... | 52 | 2.00 | 9.94 | 35.00 | ..... | 89 |
| 2.24 | 20.79 | ..... | 104 | 56 | Girder, T | 6 | 1,819 | ..... | 1 | 11.00 | 3.24 | ..... | 52 | 2.24 | 12.00 | 21.00 | ..... | 90 |
| 45.20 | 31.00 | ..... | 85 | 65 | Girder, T | 24 | 1,190 | 7 | ..... | 49.29 | 5.75 | ..... | 66 | ..... | 55.04 | 32.05 | ..... | 91 |
| 9.00 | 1.47 | ..... | 85 | 56 | Girder, T | 6 | 780 | 1 | 3 | 4.22 | 5.78 | ..... | 52 | 1.00 | 9.00 | 14.00 | ..... | 92 |
| 3.00 | 13.41 | ..... | 56 | 56 | T | 10 | 516 | 2 | ..... | 2.75 | 13.38 | ..... | 45 | ..... | 16.13 | 25.00 | ..... | 93 |
| 4.67 | ..... | ..... | 60 | 60 | T | 1 | 160 | ..... | 3 | ..... | 4.50 | ..... | 45 | ..... | 4.50 | ..... | ..... | 94 |
| 3.00 | 7.33 | ..... | 85 | 60 | T | 6 | 139 | ..... | 5 | 9.83 | ..... | ..... | 44 | ..... | 9.83 | 7.10 | ..... | 95 |
| 1.00 | 3.54 | ..... | 60 | 56 | Girder, T | ..... | ..... | ..... | ..... | 1.00 | 3.50 | ..... | 45 | ..... | 4.50 | 4.00 | ..... | 96 |
| 27.28 | 19.04 | ..... | ..... | ..... | ..... | 9 | 433 | 2 | 3 | 31.52 | 7.92 | ..... | ..... | ..... | 39.44 | 28.74 | ..... | |
| 2.50 | 3.37 | ..... | 70 | 40 | Girder, T | 1 | 18 | ..... | ..... | 2.50 | 2.80 | ..... | 50 | ..... | 5.30 | 4.00 | ..... | 1 |
| 5.00 | 2.64 | ..... | 83 | 40 | Girder, T | 3 | 75 | ..... | ..... | 6.30 | 1.00 | ..... | 50 | ..... | 7.30 | .50 | ..... | 2 |
| ..... | 3.24 | ..... | 40 | 40 | T | ..... | ..... | ..... | 2 | 2.64 | ..... | ..... | 38 | ..... | 2.64 | ..... | ..... | 3 |
| 7.13 | 4.16 | ..... | 65 | 40 | T, girder | 1 | 60 | 1 | 1 | 7.38 | .59 | ..... | 43 | ..... | 7.97 | 10.15 | ..... | 4 |
| 3.00 | 1.50 | ..... | 85 | 30 | Full groove, T | ..... | ..... | ..... | ..... | 3.25 | 1.00 | ..... | 50 | ..... | 4.25 | 4.25 | ..... | 5 |
| 4.65 | ..... | ..... | 56 | 56 | T | ..... | ..... | ..... | ..... | 4.06 | .28 | ..... | 42 | ..... | 4.34 | 4.34 | ..... | 6 |
| 5.00 | 4.13 | ..... | 70 | 64 | Girder, T | 4 | 280 | 1 | ..... | 5.39 | 2.25 | ..... | 45 | ..... | 7.64 | 5.50 | ..... | 7 |
| 1,074.88 | 1,278.55 | 129.85 | ..... | ..... | ..... | 394 | 42,650 | 201 | 191 | 908.56 | 936.35 | 12.29 | ..... | 302.41 | 1,554.79 | 2,678.60 | 6.00 | |
| 5.75 | ..... | ..... | 65 | 52 | Girder | ..... | ..... | 2 | 2 | 5.75 | ..... | ..... | 50 | ..... | 5.75 | .25 | ..... | 1 |
| 3.50 | 24.25 | ..... | 80 | 65 | T, girder | 1 | 90 | 4 | 2 | 4.00 | 23.00 | ..... | 59 | ..... | 27.00 | 21.00 | ..... | 2 |
| 4.50 | 12.52 | ..... | 60 | 60 | T | 9 | 33 | 2 | ..... | 12.00 | 5.00 | ..... | 50 | ..... | 17.00 | 12.00 | ..... | 3 |
| 2.00 | ..... | ..... | 70 | 60 | T | ..... | ..... | ..... | 1 | 2.00 | ..... | ..... | 50 | ..... | 2.00 | ..... | ..... | 4 |
| 6.91 | 20.06 | ..... | 90 | 65 | T, girder | 4 | 392 | ..... | 1 | 6.66 | 19.48 | ..... | 53 | ..... | 26.14 | 26.14 | ..... | 5 |
| 15.64 | 34.53 | 14.66 | 70 | 56 | T, girder | 2 | 550 | 1 | 15 | 25.14 | 20.87 | ..... | 53 | ..... | 46.01 | 50.00 | ..... | 6 |
| 5.11 | ..... | ..... | 56 | 50 | T | ..... | ..... | 1 | ..... | 5.00 | ..... | ..... | 52 | ..... | 5.00 | 4.50 | ..... | 7 |
| 179.60 | 33.36 | ..... | 109 | 52 | Girder | ..... | ..... | 9 | 15 | 115.41 | .97 | ..... | 59 | 113.38 | 3.00 | 365.50 | ..... | 8 |
| .61 | ..... | ..... | 85 | 65 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| 10.00 | 22.50 | ..... | 72 | 50 | T, girder | 1 | 80 | ..... | 5 | 14.50 | 6.50 | ..... | 52 | ..... | 21.00 | 22.00 | ..... | 10 |
| 14.50 | 63.85 | ..... | 83 | 45 | T, girder, groove. | 28 | 2,352 | 6 | 10 | 15.82 | 53.85 | ..... | 45 | 4.25 | 65.42 | 124.00 | ..... | 11 |
| 9.00 | 30.25 | ..... | 70 | 70 | T, girder | 5 | 1,220 | ..... | 3 | 7.00 | 25.75 | ..... | 52 | ..... | 32.75 | 55.00 | ..... | 12 |
| 142.46 | ..... | 37.01 | 109 | 52 | Girder, T, groove, flat. | 5 | 915 | 25 | 21 | 69.31 | ..... | ..... | 55 | 53.66 | 15.65 | 53.59 | ..... | 13 |
| 94.58 | ..... | ..... | 95 | 70 | Girder, groove, T | ..... | ..... | 11 | ..... | 47.87 | ..... | ..... | 60 | 47.87 | ..... | 100.00 | ..... | 14 |
| 13.50 | 54.50 | ..... | 73 | 45 | T, girder | 4 | 380 | 10 | ..... | 13.50 | 48.50 | ..... | 62 | 1.00 | 61.00 | 115.00 | ..... | 15 |
| 2.50 | 87.50 | ..... | 80 | 60 | T | 7 | 330 | ..... | ..... | ..... | 80.00 | 5.00 | 58 | ..... | 85.00 | 85.00 | ..... | 16 |
| 18.25 | 25.01 | ..... | 95 | 60 | T, girder | 3 | 2,700 | 2 | ..... | 32.37 | 3.00 | 1.50 | 58 | 1.00 | 35.87 | 83.00 | ..... | 17 |
| 27.87 | 68.98 | ..... | 80 | 50 | T, girder, groove. | 15 | 2,330 | 10 | 8 | 38.44 | 35.00 | 2.50 | 50 | ..... | 75.94 | 50.00 | ..... | 18 |
| 77.69 | 28.74 | 50.28 | 107 | 45 | T, girder | ..... | ..... | ..... | 7 | 61.53 | ..... | ..... | 41 | 29.23 | 32.30 | 82.34 | ..... | 19 |
| 3.10 | 69.50 | ..... | 70 | 70 | T, trilby | 7 | 1,360 | ..... | 5 | 15.00 | 48.60 | ..... | 53 | 4.00 | 59.60 | 50.00 | ..... | 20 |
| 4.00 | 39.50 | ..... | 109 | 70 | T | 20 | 2,170 | 2 | 2 | 10.50 | 29.00 | ..... | 52 | 4.00 | 35.50 | 41.00 | ..... | 21 |
| 20.48 | 3.80 | 2.50 | 90 | 60 | Girder, T | ..... | ..... | 5 | 4 | 10.35 | ..... | 1.79 | 48 | 8.14 | 4.00 | 7.50 | ..... | 22 |

[5] Leased from city.
[6] Includes 215.46 miles double trolley construction.
[7] Double trolley construction.
[8] Second, third, and fourth main track.
[9] Exclusive of 5.12 miles leased to Cleveland Electric Railway Company.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turnouts. | Overhead trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | OHIO—Continued. | | | | | | | | | | | | | | |
| 23 | Peoples Railway | 20.70 | 10.26 | 9.58 | .86 | 20.70 | | | | 20.70 | | 2.00 | .60 | | .70 |
| 24 | Oakwood Street | 7.90 | 3.95 | 3.95 | | 7.90 | | | | 7.90 | | | | | |
| 25 | Dayton and Western | 22.25 | 22.00 | | .25 | 22.25 | | | | 22.25 | | 6.00 | | | |
| 26 | Dayton and Northern | 40.05 | 39.00 | | 1.05 | 40.05 | | | | 40.05 | | 4.86 | | 33.75 | |
| 27 | Dayton, Springfield and Urbana | 54.07 | 45.53 | 8.00 | .54 | 54.07 | | | | 48.63 | 5.44 | 1.53 | | 41.91 | |
| 28 | Dayton and Troy | 42.70 | 33.00 | 9.00 | .70 | 42.70 | | | | 28.00 | 14.70 | 4.00 | | 18.25 | |
| 29 | Dayton and Xenia | 50.12 | 49.06 | | 1.06 | 50.12 | | | | 50.12 | | 2.89 | | 8.00 | |
| 30 | Peoples Gas and Electric | 4.53 | 4.50 | | .03 | 4.53 | | | | 4.53 | | | | | |
| 31 | Delaware Electric Railway | 7.50 | 7.00 | | .50 | 7.50 | | | | 7.50 | | | | | |
| 32 | United Electric | 2.03 | 2.00 | | .03 | 2.03 | | | | 2.03 | | | .17 | | .17 |
| 33 | East Liverpool Railway | 14.71 | 14.43 | | .28 | 14.71 | | | | 14.71 | | | 2.50 | .28 | |
| 34 | Lancaster Traction | 3.81 | 3.52 | | .29 | 3.81 | | | | 3.81 | | | | | |
| 35 | Lima Railway and Light | 18.55 | 10.55 | 7.50 | .50 | 18.55 | | | | 18.55 | | 2.00 | | | |
| 36 | Western Ohio Railway | 77.97 | 75.97 | | 2.00 | 77.97 | | | | 77.97 | | 2.60 | 20.00 | 64.04 | |
| 37 | Lorain Street Railway | 11.67 | 9.60 | | 2.07 | 11.67 | | | | 11.67 | | | | 7.10 | |
| 38 | Mansfield Railway, Light and Power. | 21.00 | 20.50 | | .50 | 21.00 | | | | 21.00 | | | | 12.00 | |
| 39 | Marion Street Railway | 4.28 | 4.02 | | .26 | 4.28 | | | | 4.28 | | | | | |
| 40 | Mt. Vernon Electric Railway | 5.10 | 5.00 | | .10 | 5.10 | | | | 5.10 | | | | | |
| 41 | Newark and Granville | 13.89 | 13.87 | | .02 | 13.89 | | | | 13.89 | | | | 1.00 | |
| 42 | Tuscarawas Traction | 13.43 | 12.73 | | .70 | 13.43 | | | | 13.43 | | | | .01 | |
| 43 | Ohio River Railway and Power | 13.02 | 12.52 | | .50 | 13.02 | | | | 13.02 | | | | 3.60 | |
| 44 | Portsmouth Street Railroad | 5.50 | 5.30 | | .20 | 5.50 | | | | 5.50 | | | | .50 | |
| 45 | Salem Electric Railway | 2.65 | 2.58 | | .07 | 2.65 | | | | 2.65 | | | | | |
| 46 | Springfield Railway | 28.13 | 18.77 | 8.36 | 1.00 | 28.13 | | | | 28.13 | | | | | |
| 47 | Springfield and Xenia | 18.08 | 18.00 | | .08 | 18.08 | | | | 18.08 | | .60 | 18.08 | 12.00 | |
| 48 | Steubenville and Pleasant Heights | 3.08 | 2.91 | | .17 | 3.08 | | | | 3.08 | | | 3.08 | .80 | |
| 49 | Steubenville Traction and Light | 12.78 | 12.03 | | .75 | 12.78 | | | | 12.78 | | | 9.50 | 1.74 | |
| 50 | Electric Railway and Power | 7.33 | 7.33 | | | 7.33 | | | | 7.33 | | | | .33 | |
| 51 | Tiffin, Fostoria and Eastern | 17.00 | 16.50 | | .50 | 17.00 | | | | 17.00 | | | | .50 | |
| 52 | Toledo Railways and Light | 97.78 | 65.75 | 31.08 | 1.00 | 97.78 | | | | 97.78 | | | .24 | 1.41 | 1.00 |
| 53 | Toledo, Bowling Green and Southern. | 40.37 | 40.00 | | .37 | 40.37 | | | | 40.37 | | 12.00 | 13.00 | 30.00 | |
| 54 | Toledo, Fostoria and Findlay | 16.28 | 16.00 | | .28 | 16.28 | | | | 16.28 | | 1.00 | | 14.00 | |
| 55 | Toledo and Western | 66.59 | 43.94 | 19.64 | 3.01 | [3] 66.59 | | | | 66.59 | | 4.00 | 47.05 | 61.90 | |
| 56 | Lake Shore | 160.43 | 155.00 | | 5.43 | 160.43 | | | | 160.43 | | 22.98 | 30.00 | 75.00 | |
| 57 | Toledo and Maumee Valley | 20.22 | 19.52 | | .70 | 20.22 | | | | 20.22 | | 7.78 | | 17.22 | |
| 58 | Wellston and Jackson Belt | 10.50 | 10.50 | | | 10.50 | | | | 10.50 | | | | 8.05 | |
| 59 | Worthington, Clintonville and Columbus. | 5.12 | 5.00 | | .12 | 5.12 | | | | 5.12 | | | | | |
| 60 | Youngstown Park and Falls | 6.13 | 3.63 | 2.40 | .10 | 6.13 | | | | 6.13 | | | | .10 | |
| 61 | Youngstown-Sharon Railway and Light. | 42.25 | 39.00 | | 3.25 | 42.25 | | | | 42.25 | | | 17.17 | 21.37 | |
| 62 | Mahoning Valley | 53.53 | 44.47 | 6.92 | 2.14 | 53.53 | | | | 53.53 | | | | 8.38 | |
| 63 | Zanesville Electric Railway | 10.00 | 9.50 | | .50 | 10.00 | | | | 10.00 | | | 1.50 | | |
| | OREGON. | | | | | | | | | | | | | | |
| | Total for state | 136.67 | 94.40 | 36.90 | 5.37 | 132.17 | | [4] 4.50 | | 136.67 | | 3.81 | 6.65 | 20.16 | |
| 1 | Astoria Electric | 4.10 | 4.00 | | .10 | 4.10 | | | | 4.10 | | | | | |
| 2 | Portland Railway | 28.03 | 16.29 | 10.90 | .84 | 26.03 | Cable | 2.00 | | 28.03 | | 2.16 | .40 | 2.75 | |
| 3 | City and Suburban | 65.50 | 39.00 | 24.00 | 2.50 | 65.50 | | | | 65.50 | | | 2.20 | 5.65 | |
| 4 | Portland City and Oregon | 24.59 | 21.36 | 2.00 | 1.23 | 24.59 | | | | 24.59 | | 1.40 | 4.05 | 11.76 | |
| 5 | Salem Light, Power and Traction | 11.95 | 11.75 | | .20 | 11.95 | | | | 11.95 | | | | | |
| 6 | Union Street and Suburban | 2.50 | 2.00 | | .50 | | Steam | 2.50 | | 2.50 | | .25 | | | |
| | PENNSYLVANIA. | | | | | | | | | | | | | | |
| | Total for state | [5] 2,481.91 | 2,001.56 | 376.96 | 103.39 | 2,469.70 | | [6] 11.40 | .81 | 1,255.67 | 1,226.24 | 36.49 | 215.82 | 342.26 | 96.37 |
| 1 | Lehigh Valley Traction | 148.81 | 133.23 | 9.77 | 5.81 | 148.81 | | | | 54.49 | 94.32 | | | 6.00 | |
| 2 | Philadelphia and Lehigh Valley | 50.05 | 47.95 | | 2.10 | 50.05 | | | | 39.21 | 10.84 | | 26.60 | 12.50 | |
| 3 | Allentown and Kutztown Traction | 22.00 | 20.00 | .50 | 1.50 | 22.00 | | | | 22.00 | | | .80 | 17.50 | |
| 4 | Altoona and Logan Valley | 19.00 | 15.25 | 1.75 | 2.00 | 19.00 | | | | 19.00 | | 8.50 | 2.00 | 10.37 | |
| 5 | Bangor and East Bangor | 2.75 | 2.75 | | | 2.75 | | | | 2.75 | | | 2.75 | 1.25 | |
| 6 | Beaver Valley Traction | 22.50 | 15.18 | 5.98 | 1.34 | 22.50 | | | | 22.50 | | | 9.20 | | |
| 7 | Riverview Electric Street Railway | 3.63 | 3.52 | | .11 | 3.63 | | | | 3.63 | | | | | |
| 8 | Patterson Heights Street Railway | .45 | .11 | [7] .34 | | .11 | Cable | .34 | | .45 | | | | .45 | |
| 9 | Columbia and Montour | 16.25 | 16.00 | | .25 | 16.25 | | | | 16.25 | | | 3.00 | | 2.00 |
| 10 | Bradford Electric Street Railway | 11.47 | 10.93 | | .54 | 11.47 | | | | 11.47 | | | | 1.00 | |
| 11 | Butler Passenger Railway | 7.25 | 7.00 | | .25 | 7.25 | | | | 7.25 | | | 2.00 | .50 | 1.50 |
| 12 | Carlisle and Mt. Holly | 6.30 | 5.80 | | .50 | 6.30 | | | | 6.30 | | .50 | .13 | 5.50 | |
| 13 | Cumberland Valley Traction | 20.00 | 18.00 | | 2.00 | 20.00 | | | | 20.00 | | | | 10.00 | |
| 14 | Chester Traction | 32.07 | 30.20 | | 1.87 | 32.07 | | | | | 32.07 | | | 3.58 | 8.98 |
| 15 | Media, Middletown, Aston and Chester. | 18.95 | 17.93 | | 1.02 | 18.95 | | | | 18.95 | | | 5.86 | | |
| 16 | Philadelphia and Chester Railway | 8.72 | 8.23 | | .49 | 8.72 | | | | 8.72 | | | | .20 | 5.72 |
| 17 | Connellsville Suburban | 2.50 | 2.40 | | .10 | 2.50 | | | | 2.50 | | | | 1.40 | |
| 18 | Newtown Electric Street Railway | 27.89 | 27.59 | | .30 | 27.89 | | | | 18.70 | 9.19 | | | 17.45 | 8.44 |
| 19 | Doylestown and Easton | 6.00 | 5.80 | | .20 | 6.00 | | | | 6.00 | | | 6.00 | | 5.00 |
| 20 | Doylestown and Willow Grove | 13.38 | 13.18 | | .20 | 13.38 | | | | 13.38 | | | | | |
| 21 | Dubois Traction | 1.34 | 1.29 | | .05 | 1.34 | | | | 1.34 | | | | .19 | |
| 22 | Easton and Nazareth | 10.00 | 9.40 | | .60 | 10.00 | | | | 10.00 | | | | 7.45 | |
| 23 | Erie Electric Motor | 28.00 | 17.00 | 9.75 | 1.25 | 28.00 | | | | 28.00 | | | | 1.75 | |
| 24 | Erie Traction | 28.00 | 27.50 | | .50 | 28.00 | | | | 28.00 | | | | 5.00 | .13 |
| 25 | Erie Rapid Transit | 13.00 | 12.50 | | .50 | 13.00 | | | | 13.00 | | 3.00 | 13.00 | .50 | |
| 26 | Franklin Electric Street Railway | 3.74 | 3.19 | .31 | .24 | 3.74 | | | | 3.74 | | | | | 3.74 |
| 27 | Gettysburg Transit | 9.50 | 8.50 | | 1.00 | 9.50 | | | | 9.50 | | | | 3.00 | |
| 28 | Hanover and McSherrystown | 3.73 | 3.63 | | .10 | 3.73 | | | | 3.73 | | | | | 1.50 |

[1] For details see Supplementary Table 1.
[2] For feeder conduit system see Supplementary Table 2.
[3] Includes 4 miles double trolley construction.
[4] Includes 2 miles of cable and 2.50 miles of steam.

CONSTRUCTION, BY COMPANIES: 1902—Continued.

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. Maximum. | Weight of rails per yard. Minimum. | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. (2) | Number. |
| 20.70 | ..... | ..... | 106 | 60 | Flat, T, girder | ..... | ..... | ..... | ..... | 7.46 | 1.30 | 1.50 | 53 | 8.26 | 2.00 | 22.69 | ..... | 23 |
| 7.00 | .90 | .40 | 90 | 66 | Girder | ..... | ..... | ..... | 1 | 3.95 | ..... | ..... | 52 | 3.95 | ..... | 3.07 | ..... | 24 |
| ..... | 22.25 | ..... | 70 | 70 | T, groove | 4 | 400 | 3 | 2 | .75 | 21.25 | ..... | 52 | ..... | 22.00 | 22.00 | ..... | 25 |
| 5.25 | 34.80 | ..... | 70 | 70 | T | 26 | 422 | 6 | ..... | 5.25 | 33.75 | ..... | 53 | .50 | 38.50 | 72.00 | ..... | 26 |
| 9.18 | 44.89 | ..... | 70 | 70 | T | 16 | 436 | 6 | ..... | 9.18 | 36.35 | ..... | 52 | 2.83 | 42.70 | 38.55 | ..... | 27 |
| 10.50 | 32.20 | ..... | 72 | 45 | Girder, T | 17 | 2,740 | 1 | 14 | 16.75 | 16.25 | ..... | 40 | ..... | 33.00 | 20.00 | ..... | 28 |
| 8.74 | 41.38 | ..... | 110 | 60 | T, groove | 6 | 1,500 | 6 | 2 | 1.84 | 47.22 | ..... | 53 | 2.44 | 46.62 | 50.00 | ..... | 29 |
| 4.53 | ..... | ..... | 48 | 48 | T | 1 | 50 | ..... | ..... | 4.50 | ..... | ..... | 50 | ..... | 4.50 | 4.50 | ..... | 30 |
| 7.50 | ..... | ..... | 50 | 50 | Girder | ..... | ..... | 2 | 1 | 7.00 | ..... | ..... | 52 | ..... | 7.00 | 2.00 | ..... | 31 |
| 2.03 | ..... | ..... | 60 | 45 | Girder, T | ..... | ..... | ..... | 2 | 2.00 | ..... | ..... | 60 | ..... | 2.00 | ..... | ..... | 32 |
| 12.63 | 2.08 | ..... | 82 | 56 | Girder, T | 6 | 1,180 | 2 | 1 | 12.93 | 1.50 | ..... | 50 | ..... | 14.43 | 6.40 | ..... | 33 |
| 3.81 | ..... | ..... | 80 | 60 | T | ..... | ..... | ..... | ..... | 3.52 | ..... | ..... | 60 | ..... | 3.52 | 1.50 | ..... | 34 |
| 18.55 | ..... | ..... | 85 | 60 | Girder | ..... | ..... | 2 | ..... | 10.55 | ..... | ..... | 50 | .25 | 10.30 | 3.00 | ..... | 35 |
| 11.93 | 66.04 | ..... | 70 | 60 | T, girder | 31 | 6,043 | 10 | 1 | 11.93 | 64.04 | ..... | 60 | .50 | 75.47 | 75.97 | ..... | 36 |
| 2.50 | 9.17 | ..... | 80 | 70 | T, girder | 2 | 18 | 3 | 1 | 9.60 | ..... | ..... | 48 | ..... | 9.60 | 8.00 | ..... | 37 |
| 8.50 | 12.50 | ..... | 80 | 48 | T, girder | 7 | 1,140 | 3 | ..... | 6.50 | 14.00 | ..... | 54 | ..... | 20.50 | 5.50 | ..... | 38 |
| 4.28 | ..... | ..... | 60 | 60 | T | ..... | ..... | ..... | 4 | 4.02 | ..... | ..... | 50 | ..... | 4.02 | ..... | ..... | 39 |
| 3.50 | 1.60 | ..... | 60 | 50 | T | ..... | ..... | ..... | ..... | 4.75 | .25 | ..... | 52 | .25 | 4.75 | 3.50 | ..... | 40 |
| 6.00 | 7.89 | ..... | 70 | 35 | T, girder | ..... | ..... | 4 | 1 | 8.87 | 5.00 | ..... | 52 | ..... | 13.87 | 11.00 | ..... | 41 |
| 5.54 | 7.89 | ..... | 80 | 45 | Girder, T | 3 | 225 | 1 | 6 | 5.53 | 7.20 | ..... | 50 | ..... | 12.73 | 8.00 | ..... | 42 |
| 4.80 | 8.22 | ..... | 60 | 60 | T | 3 | 400 | ..... | 2 | 5.30 | 7.22 | ..... | 65 | ..... | 12.52 | 6.60 | ..... | 43 |
| 3.00 | 2.50 | ..... | 70 | 48 | T | ..... | ..... | ..... | 1 | 5.30 | ..... | ..... | 42 | ..... | 5.30 | ..... | ..... | 44 |
| 2.65 | ..... | ..... | 75 | 45 | Girder | ..... | ..... | ..... | ..... | 2.58 | ..... | ..... | 30 | ..... | 2.58 | .11 | ..... | 45 |
| 28.13 | ..... | ..... | 90 | 35 | Girder, T | ..... | ..... | 2 | 10 | 18.77 | ..... | ..... | 53 | ..... | 18.77 | 28.12 | ..... | 46 |
| 2.75 | 15.33 | ..... | 70 | 70 | T, girder | 6 | 388 | 2 | 2 | 2.15 | 15.85 | ..... | 53 | ..... | 18.00 | 15.00 | ..... | 47 |
| 3.08 | ..... | ..... | 60 | 60 | T | ..... | ..... | 1 | ..... | 2.91 | ..... | ..... | 44 | ..... | 2.91 | .82 | ..... | 48 |
| 5.50 | 7.28 | ..... | 60 | 60 | T | 10 | 445 | 1 | ..... | 7.00 | 5.03 | ..... | 55 | ..... | 12.03 | 8.21 | ..... | 49 |
| 7.33 | ..... | ..... | 80 | 50 | Girder, T | ..... | ..... | 3 | ..... | 3.00 | 4.33 | ..... | 50 | ..... | 7.33 | 5.00 | ..... | 50 |
| 4.50 | 12.50 | ..... | 72 | 60 | Girder, T | 6 | 234 | 4 | 1 | 16.50 | ..... | ..... | 58 | ..... | 16.50 | 12.00 | ..... | 51 |
| 94.87 | 2.91 | 25.00 | 90 | 45 | Girder, T | ..... | ..... | 14 | 20 | 60.75 | 5.00 | ..... | 40 | 5.00 | 60.75 | 264.00 | 6.00 | 52 |
| 12.00 | 28.37 | ..... | 70 | 60 | T | 5 | 200 | 4 | 2 | 7.00 | 33.00 | ..... | 52 | ..... | 40.00 | 50.00 | ..... | 53 |
| 3.00 | 13.28 | ..... | 60 | 60 | T | 9 | 155 | 3 | ..... | 2.00 | 14.00 | ..... | 52 | ..... | 16.00 | 21.00 | ..... | 54 |
| 4.69 | 61.90 | ..... | 60 | 60 | T | 24 | 1,063 | 2 | ..... | 5.76 | 38.18 | ..... | 58 | ..... | 43.94 | 211.50 | ..... | 55 |
| 26.90 | 133.53 | ..... | 95 | 45 | T, girder | 55 | 6,081 | 7 | 10 | 59.00 | 96.00 | ..... | 60 | ..... | 155.00 | 175.00 | ..... | 56 |
| 3.00 | 17.22 | ..... | 56 | 45 | T | 3 | 330 | 5 | 1 | ..... | 19.52 | ..... | 53 | ..... | 19.52 | 23.72 | ..... | 57 |
| 2.00 | 8.50 | ..... | 60 | 60 | T, girder | ..... | ..... | 3 | 2 | 10.50 | ..... | ..... | 53 | ..... | 10.50 | 9.00 | ..... | 58 |
| ..... | 5.12 | ..... | 45 | 45 | T | ..... | ..... | ..... | ..... | ..... | 5.00 | ..... | 50 | ..... | 5.00 | 5.00 | ..... | 59 |
| 1.50 | 4.63 | ..... | 90 | 70 | Girder, T | ..... | ..... | ..... | ..... | 3.34 | .29 | ..... | 60 | 1.00 | 2.63 | 3.00 | ..... | 60 |
| 13.24 | 29.01 | ..... | 90 | 70 | Girder, T | 36 | 2,763 | 10 | 3 | 10.10 | 28.90 | ..... | 52 | ..... | 39.00 | 85.02 | ..... | 61 |
| 27.72 | 25.81 | ..... | 90 | 60 | Girder, T | 7 | 1,535 | ..... | ..... | 28.07 | 16.40 | ..... | 50 | 10.50 | 33.97 | 40.00 | ..... | 62 |
| 10.00 | ..... | ..... | 70 | 45 | Girder, T | ..... | ..... | 1 | ..... | 9.50 | ..... | ..... | 52 | .40 | 9.10 | 10.00 | ..... | 63 |
| 105.58 | 31.09 | 7.90 | ..... | ..... | ..... | 9 | 21,564 | 3 | 17 | 64.53 | 27.87 | ..... | ..... | ..... | 92.40 | 100.87 | ..... | |
| 4.10 | ..... | ..... | 52 | 30 | T, girder | 1 | 5,500 | ..... | ..... | 4.00 | ..... | ..... | 52 | ..... | 4.00 | ..... | ..... | 1 |
| 28.03 | ..... | .40 | 91 | 40 | T, girder | 2 | 9,200 | ..... | 4 | 16.29 | ..... | ..... | 44 | ..... | 16.29 | 16.41 | ..... | 2 |
| 54.00 | 11.50 | 7.50 | 85 | 30 | T, girder | ..... | ..... | 3 | 2 | 32.50 | 6.50 | ..... | 51 | ..... | 39.00 | 54.00 | ..... | 3 |
| 11.00 | 13.59 | ..... | 60 | 30 | T | 3 | 6,264 | ..... | 2 | 2.00 | 19.36 | ..... | 52 | ..... | 21.36 | 21.36 | ..... | 4 |
| 7.95 | 4.00 | ..... | 40 | 22 | T | 3 | 600 | ..... | 5 | 9.74 | 2.01 | ..... | 52 | ..... | 11.75 | 9.10 | ..... | 5 |
| .50 | 2.00 | ..... | 90 | 60 | T | ..... | ..... | ..... | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 |
| 1,368.37 | 1,113.54 | 27.47 | ..... | ..... | ..... | 352 | 34,564 | 193 | 295 | 1,532.83 | 450.69 | 9.27 | ..... | 540.20 | 1,452.19 | 2,669.72 | 632.29 | |
| 15.00 | 133.81 | ..... | 90 | 50 | Girder, T | 8 | 1,500 | 5 | 5 | 133.23 | ..... | ..... | 42 | ..... | 133.23 | 100.00 | ..... | 1 |
| 8.25 | 41.80 | ..... | 95 | 60 | Girder, T | 18 | 1,045 | ..... | 1 | 42.95 | 5.00 | ..... | 50 | .50 | 47.45 | 90.00 | ..... | 2 |
| 2.00 | 20.00 | ..... | 95 | 45 | Girder, T | 20 | 715 | 1 | 2 | 3.50 | 16.50 | ..... | 44 | ..... | 20.00 | 15.75 | ..... | 3 |
| 15.63 | 3.37 | ..... | 106 | 56 | Girder, T | 12 | 575 | 1 | ..... | 6.22 | 8.23 | .80 | 53 | ..... | 15.25 | 27.50 | ..... | 4 |
| 1.50 | 1.25 | ..... | 87 | 87 | T | ..... | ..... | ..... | 1 | 1.50 | 1.25 | ..... | 45 | ..... | 2.75 | 2.75 | ..... | 5 |
| 21.50 | 1.00 | ..... | 90 | 40 | Girder, T | ..... | ..... | 1 | 5 | 15.18 | ..... | ..... | 45 | ..... | 15.18 | 27.00 | ..... | 6 |
| 3.63 | ..... | ..... | 73 | 60 | Girder, T | ..... | ..... | 1 | ..... | 3.52 | ..... | ..... | 44 | ..... | 3.52 | 2.50 | ..... | 7 |
| .45 | ..... | ..... | 30 | 30 | T | ..... | ..... | ..... | ..... | .11 | ..... | ..... | 82 | ..... | .11 | ..... | ..... | 8 |
| 3.00 | 13.25 | ..... | 60 | 60 | T, girder | 3 | 420 | 1 | 3 | 13.00 | 3.00 | ..... | 44 | ..... | 16.00 | 9.00 | ..... | 9 |
| 5.20 | 6.27 | ..... | 72 | 48 | Girder, T | 3 | 100 | 3 | 3 | 4.50 | 6.43 | ..... | 48 | ..... | 10.93 | 11.47 | ..... | 10 |
| 5.00 | 2.25 | ..... | 66 | 60 | Girder, T | ..... | ..... | 1 | ..... | 5.00 | 2.00 | ..... | 52 | ..... | 7.00 | 4.00 | ..... | 11 |
| 1.30 | 5.00 | ..... | 70 | 70 | Girder, T | 5 | 140 | ..... | ..... | .80 | 5.00 | ..... | 52 | ..... | 5.80 | 6.00 | ..... | 12 |
| 7.00 | 13.00 | ..... | 70 | 45 | Girder, T | 4 | 70 | ..... | 5 | 9.00 | 9.00 | ..... | 52 | ..... | 18.00 | 14.00 | ..... | 13 |
| 23.55 | 8.52 | ..... | 90 | 60 | Girder, T, box | 2 | 90 | 4 | 8 | 16.23 | 13.97 | ..... | 44 | ..... | 30.20 | 89.43 | ..... | 14 |
| 14.59 | 4.36 | ..... | 70 | 70 | Girder, T | 7 | 535 | 1 | 1 | 17.93 | ..... | ..... | 42 | 2.00 | 15.93 | 16.00 | ..... | 15 |
| 2.80 | 5.92 | ..... | 40 | 40 | Girder, T | 2 | 100 | 6 | 1 | 2.82 | 5.41 | ..... | 44 | ..... | 8.23 | 8.83 | ..... | 16 |
| 1.10 | 1.40 | ..... | 56 | 56 | T | 1 | 50 | ..... | ..... | 2.40 | ..... | ..... | 42 | ..... | 2.40 | 2.40 | ..... | 17 |
| 4.75 | 23.14 | ..... | 70 | 60 | Girder, T | 3 | 300 | ..... | 1 | 3.00 | 24.59 | ..... | 41 | ..... | 27.59 | 27.00 | ..... | 18 |
| 1.00 | 5.00 | ..... | 70 | 70 | Girder, T | 1 | 60 | ..... | ..... | 1.00 | 4.80 | ..... | 48 | ..... | 5.80 | 2.00 | ..... | 19 |
| ..... | 13.38 | ..... | 56 | 56 | T | 10 | 1,000 | ..... | ..... | 1.18 | 12.00 | ..... | 47 | ..... | 13.18 | 13.00 | ..... | 20 |
| 1.34 | ..... | ..... | 45 | 45 | Girder | ..... | ..... | ..... | ..... | 1.29 | ..... | ..... | 38 | ..... | 1.29 | .75 | ..... | 21 |
| 1.73 | 8.27 | ..... | 90 | 65 | Girder, T | 9 | 719 | ..... | 2 | 1.50 | 7.90 | ..... | 48 | 2.40 | 7.00 | 18.60 | ..... | 22 |
| 9.00 | 19.00 | ..... | 90 | 75 | Girder, T | 2 | 200 | 1 | 6 | 16.00 | ..... | 1.00 | 44 | 1.00 | 16.00 | 25.00 | ..... | 23 |
| 2.50 | 25.50 | ..... | 90 | 56 | Girder, T | 8 | 170 | ..... | ..... | 2.50 | 25.00 | ..... | 50 | ..... | 27.50 | 50.00 | ..... | 24 |
| .08 | 12.92 | ..... | 63 | 60 | Girder, T | 4 | 215 | ..... | ..... | 1.00 | 11.50 | ..... | 42 | ..... | 12.50 | 17.50 | ..... | 25 |
| 3.74 | ..... | ..... | 60 | 58 | T | ..... | ..... | 1 | 1 | 2.99 | .20 | ..... | 45 | ..... | 3.19 | 1.60 | ..... | 26 |
| 2.50 | 7.00 | ..... | 60 | 60 | T | 3 | 90 | ..... | 1 | 2.50 | 6.00 | ..... | 52 | ..... | 8.50 | 8.50 | ..... | 27 |
| 2.23 | 1.50 | ..... | 56 | 45 | Girder, T | ..... | ..... | ..... | 3 | 3.00 | .63 | ..... | 50 | ..... | 3.63 | ..... | ..... | 28 |

[1] Includes 1 mile duplicated track. (See note 3, page 296.)
[2] Includes 5.90 miles cable and 5.50 miles steam.
[7] Second, third, and fourth main track.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turn-outs. | Overhead trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— | |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | PENNSYLVANIA—Continued. | | | | | | | | | | | | | | |
| 29 | Lehigh Traction | 20.09 | 18.61 | ..... | 1.48 | 20.09 | ..... | ..... | ..... | 20.09 | ..... | ..... | ..... | 14.66 | ..... |
| 30 | Harrisburg Traction | 49.00 | 43.00 | 4.00 | 2.00 | 49.00 | ..... | ..... | ..... | 32.00 | 17.00 | ..... | 1.00 | .50 | 2.50 |
| 31 | Harrisburg and Mechanicsburg | 15.24 | 15.00 | ..... | .24 | 15.24 | ..... | ..... | ..... | 7.94 | 7.30 | .11 | 7.30 | 7.00 | .88 |
| 32 | Cambria Incline Plane | .34 | .17 | .17 | ..... | ..... | Cable.. | .34 | ..... | .34 | ..... | ..... | ..... | ..... | .34 |
| 33 | Johnstown Passenger Railway | 31.30 | 23.80 | 5.60 | 1.90 | 31.30 | ..... | ..... | ..... | 31.30 | ..... | ..... | ..... | 10.00 | ..... |
| 34 | Kittanning and Ford City | 5.25 | 5.00 | ..... | .25 | 5.25 | ..... | ..... | ..... | 5.25 | ..... | ..... | ..... | ..... | 1.00 |
| 35 | Conestoga Traction | 83.81 | 82.00 | ..... | 1.81 | 83.81 | ..... | ..... | ..... | 34.53 | 49.28 | ..... | ..... | 20.00 | .50 |
| 36 | Lebanon Valley | 23.00 | 22.00 | ..... | 1.00 | 23.00 | ..... | ..... | ..... | 23.00 | ..... | ..... | ..... | .26 | ..... |
| 37 | Lewistown and Reedsville | 6.25 | 6.00 | ..... | .25 | 6.25 | ..... | ..... | ..... | 6.25 | ..... | ..... | ..... | 5.50 | ..... |
| 38 | Susquehanna Traction | 5.35 | 5.20 | ..... | .15 | 5.35 | ..... | ..... | ..... | 5.35 | ..... | ..... | ..... | 2.60 | ..... |
| 39 | Lykens and Williams Valley | 10.74 | 10.30 | ..... | .44 | 10.74 | ..... | ..... | ..... | 10.74 | ..... | ..... | .32 | .20 | ..... |
| 40 | Highland Grove | 1.02 | 1.00 | ..... | .02 | 1.02 | ..... | ..... | ..... | 1.02 | ..... | 2.00 | ..... | ..... | ..... |
| 41 | Schuylkill Traction | 28.00 | 27.00 | ..... | 1.00 | 28.00 | ..... | ..... | ..... | 28.00 | ..... | ..... | ..... | ..... | ..... |
| 42 | Mauch Chunk, Lehighton and Slatington. | 13.19 | 12.39 | ..... | .80 | 13.19 | ..... | ..... | ..... | 13.19 | ..... | ..... | 8.15 | 9.19 | ..... |
| 43 | Meadville Traction | 11.00 | 11.00 | ..... | ..... | 11.00 | ..... | ..... | ..... | 11.00 | ..... | ..... | ..... | ..... | ..... |
| 44 | Lewisburg, Milton and Watsontown. | 9.88 | 9.75 | ..... | .13 | 9.88 | ..... | ..... | ..... | 9.88 | ..... | ..... | ..... | .25 | ..... |
| 45 | Montoursville Passenger | 5.00 | 4.96 | ..... | .04 | 5.00 | ..... | ..... | ..... | 5.00 | ..... | ..... | ..... | ..... | .50 |
| 46 | New Castle Traction | 19.20 | 10.80 | 8.20 | .20 | 19.20 | ..... | ..... | ..... | 19.20 | ..... | ..... | ..... | 3.00 | ..... |
| 47 | New Castle and Lowell | 12.49 | 10.12 | ..... | 2.37 | 12.49 | ..... | ..... | ..... | 12.49 | ..... | ..... | 12.49 | 12.49 | ..... |
| 48 | Schuylkill Valley Traction | 51.31 | 47.00 | 2.00 | 2.31 | 51.31 | ..... | ..... | ..... | ..... | 51.31 | ..... | .80 | 1.50 | ..... |
| 49 | Lansdale and Norristown | 10.28 | 10.10 | ..... | .18 | 10.28 | ..... | ..... | ..... | 10.28 | ..... | 3.00 | 10.28 | 5.10 | ..... |
| 50 | Peoples Street Railway | 6.00 | 5.96 | ..... | .04 | 6.00 | ..... | ..... | ..... | 6.00 | ..... | ..... | ..... | ..... | ..... |
| 51 | Citizens Traction | 13.42 | 12.40 | .63 | .39 | 13.42 | ..... | ..... | ..... | 13.42 | ..... | ..... | 5.00 | 5.50 | ..... |
| 52 | Oil City Street Railway | 8.10 | 7.17 | ..... | .93 | 8.10 | ..... | ..... | ..... | 4.58 | 3.52 | ..... | ..... | .10 | 7.07 |
| 53 | Union Traction | 475.46 | 337.31 | 113.93 | 24.22 | 475.46 | ..... | ..... | ..... | ..... | 475.46 | ..... | 18.90 | ..... | ..... |
| 54 | Southwestern Street Railway | 15.98 | 9.49 | 6.21 | .28 | 15.98 | ..... | ..... | ..... | 15.98 | ..... | ..... | ..... | 5.20 | ..... |
| 55 | Philadelphia, Bristol and Trenton | 11.81 | 11.25 | ..... | .56 | 11.00 | ..... | ..... | .81 | 11.81 | ..... | ..... | .89 | ..... | ..... |
| 56 | Philadelphia and West Chester Traction. | 24.08 | 23.33 | ..... | .75 | 24.08 | ..... | ..... | ..... | 20.75 | 3.33 | ..... | ..... | ..... | 3.00 |
| 57 | Holmesburg, Tacony and Frankford | [3]18.29 | 12.89 | 4.28 | 1.12 | 18.29 | ..... | ..... | ..... | 17.29 | 1.00 | ..... | ..... | ..... | ..... |
| 58 | Fairmount Park Transportation | 8.80 | 8.60 | ..... | .20 | 8.80 | ..... | ..... | ..... | 8.80 | ..... | ..... | ..... | ..... | ..... |
| 59 | Delaware County and Philadelphia | 15.00 | 14.50 | ..... | .50 | 15.00 | ..... | ..... | ..... | 10.00 | 5.00 | ..... | ..... | .06 | .06 |
| 60 | Montgomery and Chester | 5.57 | 5.50 | ..... | .07 | 5.57 | ..... | ..... | ..... | 5.57 | ..... | ..... | ..... | 2.00 | ..... |
| 61 | Pittsburg Railways | 410.01 | 233.48 | 173.81 | 2.72 | 407.23 | Cable.. | 2.78 | ..... | 48.51 | 361.50 | ..... | 24.19 | 22.70 | ..... |
| 62 | St. Clair Incline Plane | .80 | .40 | .40 | ..... | ..... | Cable.. | .80 | ..... | .80 | ..... | ..... | ..... | .80 | ..... |
| 63 | Duquesne Incline Plane | .30 | .15 | .15 | ..... | ..... | Cable.. | .30 | ..... | .30 | ..... | ..... | ..... | .30 | ..... |
| 64 | Pittsburg and Castle Shannon | .52 | .26 | .26 | ..... | ..... | Cable.. | .52 | ..... | .52 | ..... | ..... | ..... | .52 | ..... |
| 65 | Monongahela Incline Plane | .48 | .12 | [4].36 | ..... | ..... | Cable.. | .48 | ..... | .48 | ..... | ..... | ..... | .48 | ..... |
| 66 | Penn Incline Plane | .34 | .17 | .17 | ..... | ..... | Cable.. | .34 | ..... | .34 | ..... | ..... | ..... | .34 | ..... |
| 67 | Pittsburg, McKeesport and Greensburg. | 21.36 | 20.46 | ..... | .90 | 21.36 | ..... | ..... | ..... | 21.36 | ..... | ..... | 8.70 | 7.87 | ..... |
| 68 | Pittsburg, McKeesport and Connellsville. | 56.00 | 49.47 | 5.11 | 1.42 | 56.00 | ..... | ..... | ..... | 56.00 | ..... | ..... | 21.00 | 15.50 | 1.75 |
| 69 | Pottstown Passenger Railway | 6.11 | 6.00 | ..... | .11 | 6.11 | ..... | ..... | ..... | 6.11 | ..... | ..... | ..... | 12.00 | ..... |
| 70 | Ringing Rocks Electric | 3.80 | 3.60 | ..... | .20 | 3.80 | ..... | ..... | ..... | 3.80 | ..... | ..... | ..... | 1.00 | 1.60 |
| 71 | Pottsville Union Traction | 30.60 | 24.60 | 1.60 | 4.40 | 30.60 | ..... | ..... | ..... | 30.60 | ..... | 12.20 | ..... | 1.25 | 18.00 |
| 72 | Punxsutawney Street Railway | 12.13 | 12.00 | ..... | .13 | 12.13 | ..... | ..... | ..... | 12.13 | ..... | ..... | ..... | ..... | ..... |
| 73 | United Traction | 63.44 | 55.11 | 3.80 | 4.53 | 63.44 | ..... | ..... | ..... | ..... | 63.44 | ..... | .64 | ..... | 8.98 |
| 74 | Waverly, Sayre and Athens | 9.11 | 9.00 | ..... | .11 | 9.11 | ..... | ..... | ..... | 9.11 | ..... | ..... | ..... | ..... | ..... |
| 75 | Neversink Mountain Railroad | 8.70 | 8.03 | ..... | .67 | 8.70 | ..... | ..... | ..... | 8.70 | ..... | ..... | ..... | 7.42 | ..... |
| 76 | Mt. Penn Gravity Railway | 8.00 | 7.80 | .10 | .10 | 2.50 | Steam . | 5.50 | ..... | 8.00 | ..... | ..... | ..... | 8.00 | ..... |
| 77 | Scranton Railway | 76.68 | 65.33 | 8.74 | 2.61 | 76.68 | ..... | ..... | ..... | 38.10 | 38.58 | ..... | 1.20 | 1.80 | .38 |
| 78 | Shamokin and Mt. Carmel | 19.35 | 19.00 | ..... | .35 | 19.35 | ..... | ..... | ..... | 16.25 | 3.10 | 1.00 | ..... | ..... | 7.10 |
| 79 | Shamokin and Edgewood | 3.20 | 3.10 | ..... | .10 | 3.20 | ..... | ..... | ..... | 3.20 | ..... | ..... | ..... | ..... | ..... |
| 80 | Stroudsburg Passenger | 2.75 | 2.70 | ..... | .05 | 2.75 | ..... | ..... | ..... | 2.75 | ..... | ..... | 1.00 | ..... | ..... |
| 81 | Sunbury and Northumberland | 3.90 | 3.40 | ..... | .50 | 3.90 | ..... | ..... | ..... | 3.90 | ..... | ..... | ..... | ..... | .50 |
| 82 | Tamaqua and Lansford | 14.63 | 12.71 | ..... | 1.92 | 14.63 | ..... | ..... | ..... | 14.63 | ..... | ..... | 3.71 | 10.85 | ..... |
| 83 | Tarentum Traction Passenger | 6.61 | 6.11 | ..... | .50 | 6.61 | ..... | ..... | ..... | 6.61 | ..... | ..... | 2.70 | ..... | ..... |
| 84 | Titusville Electric Traction | 12.00 | 11.00 | ..... | 1.00 | 12.00 | ..... | ..... | ..... | 12.00 | ..... | ..... | ..... | 8.00 | ..... |
| 85 | Warren Street Railway | 20.00 | 19.25 | ..... | .75 | 20.00 | ..... | ..... | ..... | 20.00 | ..... | ..... | ..... | ..... | 5.00 |
| 86 | Washington Electric Railway | 3.26 | 3.23 | ..... | .03 | 3.26 | ..... | ..... | ..... | 3.26 | ..... | ..... | ..... | ..... | ..... |
| 87 | West Chester Street Railway | 5.86 | 5.75 | ..... | .11 | 5.86 | ..... | ..... | ..... | 5.86 | ..... | ..... | ..... | 3.00 | ..... |
| 88 | Wilkesbarre and Wyoming Valley | 66.58 | 52.31 | 7.60 | 6.77 | 66.58 | ..... | ..... | ..... | [6]66.58 | ..... | ..... | ..... | 6.00 | ..... |
| 89 | Wilkesbarre, Dallas and Harveys Lake. | 13.00 | 11.83 | ..... | 1.17 | 13.00 | ..... | ..... | ..... | 13.00 | ..... | 3.50 | ..... | 12.99 | ..... |
| 90 | Vallamont Traction | 3.47 | 3.43 | ..... | .04 | 3.47 | ..... | ..... | ..... | 3.47 | ..... | .23 | ..... | ..... | ..... |
| 91 | South Side Passenger Railway | 1.85 | 1.81 | ..... | .04 | 1.85 | ..... | ..... | ..... | 1.85 | ..... | .18 | ..... | ..... | ..... |
| 92 | Williamsport Passenger Railway | 8.64 | 6.96 | 1.54 | .14 | 8.64 | ..... | ..... | ..... | 8.64 | ..... | ..... | ..... | .10 | .20 |
| 93 | East End Passenger Railway | 2.45 | 2.45 | ..... | ..... | 2.45 | ..... | ..... | ..... | 2.45 | ..... | ..... | ..... | ..... | ..... |
| 94 | Red Lion and Windsor | 2.00 | 2.00 | ..... | ..... | 2.00 | ..... | ..... | ..... | 2.00 | ..... | ..... | 2.00 | ..... | ..... |
| 95 | Yardley, Morrisville and Trenton | 5.99 | 5.96 | ..... | .03 | 5.99 | ..... | ..... | ..... | 5.99 | ..... | ..... | ..... | ..... | ..... |
| 96 | York and Dover Electric | 7.93 | 7.51 | ..... | .42 | 7.93 | ..... | ..... | ..... | 7.93 | ..... | 1.13 | 7.93 | 6.00 | ..... |
| 97 | York and Dallastown Electric | 6.28 | 5.91 | ..... | .37 | 6.28 | ..... | ..... | ..... | 6.28 | ..... | 1.14 | 6.28 | 3.64 | ..... |
| 98 | York Street Railway | 12.25 | 11.50 | ..... | .75 | 12.25 | ..... | ..... | ..... | 12.25 | ..... | ..... | ..... | 1.00 | ..... |
| | RHODE ISLAND. | | | | | | | | | | | | | | |
| | Total for state | 328.90 | 270.00 | 42.18 | 16.72 | 328.90 | ..... | ..... | ..... | 328.90 | ..... | 7.43 | 38.07 | 72.59 | .30 |
| 1 | Sea View Railroad | 18.88 | 18.04 | ..... | .84 | 18.88 | ..... | ..... | ..... | 18.88 | ..... | ..... | ..... | 17.92 | ..... |
| 2 | Pawtucket Street Railway | 19.71 | 18.04 | .57 | 1.10 | 19.71 | ..... | ..... | ..... | 19.71 | ..... | ..... | ..... | ..... | ..... |
| 3 | Union Railroad | 137.05 | 104.55 | 24.64 | 7.86 | 137.05 | ..... | ..... | ..... | 137.05 | ..... | 4.03 | 7.54 | .23 | ..... |
| 4 | Rhode Island Suburban | 68.07 | 55.34 | 9.20 | 3.53 | 68.07 | ..... | ..... | ..... | 68.07 | ..... | ..... | 4.88 | 11.40 | .30 |
| 5 | Providence and Danielson | 25.12 | 24.15 | ..... | .97 | 25.12 | ..... | ..... | ..... | 25.12 | ..... | 3.40 | 24.15 | 11.64 | ..... |
| 6 | New York, New Haven and Hartford. | 31.50 | 22.23 | 7.77 | 1.50 | 31.50 | ..... | ..... | ..... | 31.50 | ..... | ..... | ..... | 31.25 | ..... |
| 7 | Pawcatuck Valley Railway | 6.23 | 6.15 | ..... | .08 | 6.23 | ..... | ..... | ..... | 6.23 | ..... | ..... | ..... | .15 | ..... |
| 8 | Woonsocket Street Railway | 22.34 | 21.50 | ..... | .84 | 22.34 | ..... | ..... | ..... | 22.34 | ..... | ..... | 1.50 | ..... | ..... |

[1] For details see Supplementary Table 1.
[2] For feeder conduit system see Supplementary Table 2.
[3] Includes 1 mile leased from an operating company.
[4] Second, third, and fourth main track.

**CONSTRUCTION, BY COMPANIES: 1902—Continued.**

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. | | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. (2) | Number. |
| | | | Maximum. | Minimum. | | | | | | | | | | | | | | |
| 2.63 | 17.46 | ..... | 60 | 60 | Girder, T | 10 | 241 | 4 | 12 | 2.50 | 16.11 | ..... | 50 | ..... | 18.61 | 44.20 | ..... | 29 |
| 37.00 | 12.00 | ..... | 107 | 48 | Girder, T, groove | 9 | 170 | 6 | 1 | 34.90 | 8.00 | .10 | 50 | 12.00 | 31.00 | 90.00 | ..... | 30 |
| 5.24 | 10.00 | ..... | 60 | 50 | Girder, T | 2 | 150 | ..... | ..... | 11.50 | 3.50 | ..... | 56 | ..... | 15.00 | 14.00 | ..... | 31 |
| .34 | ..... | ..... | 40 | 40 | T | 1 | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 32 |
| 11.80 | 19.50 | .50 | 97 | 78 | Girder, T | 10 | 775 | 4 | 7 | 23.80 | ..... | ..... | 52 | ..... | 23.80 | 20.00 | ..... | 33 |
| 4.00 | 1.25 | ..... | 70 | 56 | Girder, T | 4 | 62 | ..... | ..... | 3.00 | 2.00 | ..... | 50 | ..... | 5.00 | 2.00 | ..... | 34 |
| 13.55 | 70.26 | ..... | 90 | 48 | Girder, T | 8 | 2,360 | 5 | 7 | 77.00 | 5.00 | ..... | 60 | ..... | 82.00 | 200.00 | ..... | 35 |
| 5.00 | 18.00 | ..... | 90 | 50 | Girder, T | 5 | 63 | 1 | 6 | 9.00 | 13.00 | ..... | 40 | ..... | 22.00 | 29.00 | ..... | 36 |
| 2.00 | 4.25 | ..... | 90 | 50 | Girder, T | 3 | 210 | ..... | ..... | 3.00 | 3.00 | ..... | 45 | ..... | 6.00 | 4.50 | ..... | 37 |
| 2.60 | 2.75 | ..... | 56 | 45 | Girder, T | 1 | 40 | 1 | ..... | 3.00 | 2.20 | ..... | 43 | ..... | 5.20 | 4.20 | ..... | 38 |
| 3.50 | 7.24 | ..... | 76 | 45 | Girder, T, groove | 1 | 120 | ..... | ..... | 10.30 | ..... | ..... | 40 | ..... | 10.30 | 5.00 | ..... | 39 |
| 1.02 | ..... | ..... | 80 | 80 | Girder | ..... | ..... | 1 | ..... | ..... | 1.00 | ..... | 58 | 1.00 | ..... | 2.00 | ..... | 40 |
| 8.00 | 20.00 | ..... | 70 | 40 | T | 16 | 2,368 | ..... | 15 | 8.00 | 19.00 | ..... | 60 | ..... | 27.00 | 68.75 | ..... | 41 |
| 4.00 | 9.19 | ..... | 85 | 60 | Girder, T | ..... | ..... | ..... | ..... | 3.87 | 8.52 | ..... | 43 | ..... | 12.39 | 10.50 | ..... | 42 |
| 6.50 | 4.50 | ..... | 70 | 70 | Girder | 2 | 240 | 2 | ..... | 6.50 | 4.50 | ..... | 56 | ..... | 11.00 | 6.00 | ..... | 43 |
| 2.00 | 7.88 | ..... | 70 | 60 | T | 4 | 90 | ..... | ..... | 2.00 | 7.75 | ..... | 56 | ..... | 9.75 | 4.00 | ..... | 44 |
| 2.00 | 3.00 | ..... | 56 | 56 | Girder, T | ..... | ..... | ..... | ..... | 2.00 | 2.96 | ..... | 50 | ..... | 4.96 | 3.00 | ..... | 45 |
| 16.20 | 3.00 | ..... | 80 | 66 | Girder, T | ..... | ..... | 6 | 11 | 10.80 | ..... | ..... | 53 | ..... | 10.80 | 18.00 | ..... | 46 |
| .56 | 11.93 | ..... | 70 | 70 | T | ..... | ..... | ..... | 2 | 10.12 | ..... | ..... | 52 | ..... | 10.12 | 16.00 | ..... | 47 |
| 10.80 | 40.51 | ..... | 90 | 60 | Girder, T | 1 | 35 | 6 | 2 | 18.82 | 28.18 | ..... | 55 | 9.00 | 38.00 | 83.82 | ..... | 48 |
| 3.75 | 6.53 | ..... | 78 | 72 | Girder, T | 1 | 100 | 1 | ..... | 2.00 | 8.10 | ..... | 52 | ..... | 10.10 | 16.00 | ..... | 49 |
| 1.00 | 5.00 | ..... | 56 | 56 | T | 3 | 90 | ..... | 2 | 4.96 | 1.00 | ..... | 57 | ..... | 5.96 | 5.50 | ..... | 50 |
| 5.51 | 7.91 | ..... | 70 | 60 | Girder, T | 3 | 755 | 1 | ..... | 7.93 | 4.47 | ..... | 60 | ..... | 12.40 | 9.10 | ..... | 51 |
| 3.83 | 4.27 | ..... | 70 | 56 | Girder, T | ..... | ..... | 3 | ..... | 2.30 | 4.87 | ..... | 45 | ..... | 7.17 | ..... | ..... | 52 |
| 465.00 | 10.46 | 26.97 | 135 | 60 | Girder, T | ..... | ..... | 54 | 55 | 308.86 | 23.08 | 5.37 | 50 | 336.31 | 1.00 | 186.18 | 628.29 | 53 |
| 15.98 | ..... | ..... | 90 | 60 | Girder, T | ..... | ..... | ..... | 3 | 6.39 | 3.10 | ..... | 41 | 6.89 | 2.60 | 30.00 | ..... | 54 |
| 1.25 | 10.56 | ..... | 90 | 60 | Girder, T | ..... | ..... | ..... | ..... | 7.00 | 3.44 | ..... | 48 | ..... | 10.44 | 9.00 | ..... | 55 |
| ..... | 24.08 | ..... | 70 | 56 | Girder, T | 4 | 60 | ..... | 1 | 16.33 | 7.00 | ..... | 50 | ..... | 23.33 | 40.00 | ..... | 56 |
| 18.29 | ..... | ..... | 70 | 60 | Girder, T | ..... | ..... | 1 | 3 | 12.89 | ..... | ..... | 53 | ..... | 12.89 | 14.50 | ..... | 57 |
| 8.80 | ..... | ..... | 90 | 90 | T | 15 | 2,922 | ..... | ..... | 8.60 | ..... | ..... | 53 | 8.60 | ..... | ..... | 4.00 | 58 |
| 3.60 | 11.40 | ..... | 90 | 75 | Girder, T | 3 | 440 | ..... | ..... | 1.60 | 12.90 | ..... | 50 | ..... | 14.50 | 44.00 | ..... | 59 |
| 2.00 | 3.57 | ..... | 80 | 60 | T | 2 | 350 | ..... | ..... | 2.00 | 3.50 | ..... | 45 | 1.00 | 4.50 | 3.00 | ..... | 60 |
| 239.07 | 170.94 | ..... | 117 | 60 | Girder, T | 6 | 2,775 | 17 | 32 | 232.09 | ..... | ..... | 45 | 154.50 | 77.59 | 434.25 | ..... | 61 |
| .80 | ..... | ..... | 60 | 60 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 62 |
| .30 | ..... | ..... | 45 | 45 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 63 |
| .52 | ..... | ..... | 60 | 60 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 64 |
| .48 | ..... | ..... | 75 | 60 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 65 |
| .34 | ..... | ..... | 60 | 60 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 66 |
| 6.05 | 15.31 | ..... | 85 | 60 | Girder, T | 19 | 799 | ..... | 2 | 20.36 | .10 | ..... | 55 | ..... | 20.46 | 20.46 | ..... | 67 |
| 38.75 | 17.25 | ..... | 90 | 40 | Girder, T | 16 | 2,770 | ..... | 12 | 42.47 | 7.00 | ..... | 42 | 3.00 | 46.47 | 49.47 | ..... | 68 |
| 3.50 | 2.61 | ..... | 66 | 49 | Girder, T | ..... | ..... | ..... | ..... | 3.50 | 2.50 | ..... | 50 | ..... | 6.00 | 6.00 | ..... | 69 |
| 1.50 | 2.30 | ..... | 80 | 48 | Girder, T | 1 | 75 | ..... | ..... | 1.50 | 2.10 | ..... | 50 | ..... | 3.60 | 3.00 | ..... | 70 |
| 12.00 | 18.60 | ..... | 70 | 60 | Girder, T | 3 | 150 | ..... | 9 | 11.40 | 13.20 | ..... | 40 | ..... | 24.60 | 36.00 | ..... | 71 |
| 2.00 | 10.13 | ..... | 56 | 50 | Girder, T | 3 | 95 | 2 | 4 | 12.00 | ..... | ..... | 50 | ..... | 12.00 | 8.00 | ..... | 72 |
| 34.23 | 29.21 | ..... | 93 | 60 | Girder, T | 15 | 867 | 3 | 7 | 50.56 | 4.55 | ..... | 50 | ..... | 55.11 | 100.15 | ..... | 73 |
| 9.11 | ..... | ..... | 60 | 45 | T | 3 | 400 | 1 | ..... | 8.25 | .75 | ..... | 52 | ..... | 9.00 | 3.00 | ..... | 74 |
| 1.28 | 7.42 | ..... | 56 | 56 | T | 3 | 288 | ..... | ..... | 2.27 | 5.76 | ..... | 50 | ..... | 8.03 | 16.06 | ..... | 75 |
| ..... | 8.00 | ..... | 45 | 45 | T | ..... | ..... | ..... | ..... | 2.50 | ..... | ..... | 40 | ..... | 2.50 | 2.50 | ..... | 76 |
| 65.18 | 11.50 | ..... | 107 | 40 | Full groove, girder, T. | 5 | 3,060 | 11 | 19 | 57.33 | 8.00 | ..... | 38 | .50 | 64.83 | 76.68 | ..... | 77 |
| 4.00 | 15.35 | ..... | 70 | 58 | Girder, T | 3 | 1,100 | ..... | 2 | 4.00 | 15.00 | ..... | 50 | ..... | 19.00 | 32.00 | ..... | 78 |
| 2.20 | 1.00 | ..... | 56 | 48 | Girder, T | 1 | 10 | ..... | 3 | 2.05 | 1.05 | ..... | 55 | ..... | 3.10 | 5.50 | ..... | 79 |
| 2.75 | ..... | ..... | 60 | 45 | T | ..... | ..... | ..... | 1 | 2.48 | .22 | ..... | 42 | ..... | 2.70 | .68 | ..... | 80 |
| 2.50 | 1.40 | ..... | 56 | 40 | Girder, T | ..... | ..... | ..... | 3 | 3.20 | .20 | ..... | 44 | ..... | [5]3.00 | 2.00 | ..... | 81 |
| 3.70 | 10.93 | ..... | 60 | 60 | T | 4 | 300 | 1 | 3 | 12.71 | ..... | ..... | 53 | ..... | 12.71 | 41.00 | ..... | 82 |
| 6.61 | ..... | ..... | 70 | 66 | T | ..... | ..... | ..... | ..... | 6.11 | ..... | ..... | 48 | 1.25 | 4.86 | 6.11 | ..... | 83 |
| 4.00 | 8.00 | ..... | 67 | 67 | T | 2 | 330 | ..... | 2 | 7.00 | 4.00 | ..... | 40 | ..... | 11.00 | 7.00 | ..... | 84 |
| 6.00 | 14.00 | ..... | 77 | 45 | T, girder | 3 | 60 | ..... | 2 | 14.25 | 5.00 | ..... | 50 | ..... | 19.25 | 15.00 | ..... | 85 |
| 3.26 | ..... | ..... | 60 | 60 | Girder, T | ..... | ..... | ..... | ..... | 3.23 | ..... | ..... | 40 | ..... | 3.23 | 3.23 | ..... | 86 |
| 1.66 | 4.20 | ..... | 48 | 40 | Girder, T | 2 | 530 | ..... | ..... | 1.75 | 4.00 | ..... | 45 | ..... | 5.75 | 7.50 | ..... | 87 |
| 60.00 | 6.58 | ..... | 90 | 35 | Girder, T | 11 | 340 | 30 | 10 | 45.31 | 5.00 | 2.00 | 53 | .25 | 52.06 | 150.00 | ..... | 88 |
| 2.00 | 11.00 | ..... | 60 | 60 | T | 9 | 217 | ..... | ..... | 4.16 | 7.67 | ..... | 65 | ..... | 11.83 | 15.00 | ..... | 89 |
| 2.31 | 1.16 | ..... | 65 | 65 | Girder, T | ..... | ..... | 1 | 1 | 3.43 | ..... | ..... | 45 | ..... | 3.43 | 2.30 | ..... | 90 |
| 1.85 | ..... | ..... | 65 | 65 | Girder, T | ..... | ..... | 1 | 1 | 1.81 | ..... | ..... | 45 | ..... | 1.81 | ..... | ..... | 91 |
| 8.64 | ..... | ..... | 90 | 42 | Girder, T | 1 | 265 | 1 | ..... | 6.96 | ..... | ..... | 45 | ..... | 6.96 | 2.00 | ..... | 92 |
| 1.06 | 1.39 | ..... | 45 | 45 | Girder, T | ..... | ..... | ..... | ..... | 2.45 | ..... | ..... | 45 | ..... | 2.45 | ..... | ..... | 93 |
| .50 | 1.50 | ..... | 60 | 60 | T, groove | ..... | ..... | ..... | ..... | 2.00 | ..... | ..... | 52 | ..... | 2.00 | 2.00 | ..... | 94 |
| 1.25 | 4.74 | ..... | 70 | 60 | T | ..... | ..... | ..... | ..... | 5.96 | ..... | ..... | 50 | ..... | 5.96 | ..... | ..... | 95 |
| 1.60 | 6.33 | ..... | 60 | 60 | Girder, T | 1 | 120 | ..... | 1 | 7.51 | ..... | ..... | 52 | ..... | 7.51 | 20.00 | ..... | 96 |
| ..... | 6.28 | ..... | 60 | 60 | Girder, T | 7 | 155 | ..... | ..... | 5.91 | ..... | ..... | 52 | ..... | 5.91 | 15.00 | ..... | 97 |
| 9.25 | 3.00 | ..... | 70 | 45 | Groove, girder, T. | 1 | 23 | 2 | 5 | 11.50 | ..... | ..... | 52 | ..... | 11.50 | 15.00 | ..... | 98 |
| 226.37 | 102.53 | 14.50 | ..... | ..... | ..... | 20 | 4,518 | 7 | 11 | 159.08 | 110.92 | ..... | ..... | 26.74 | 243.26 | 237.54 | ..... | |
| ..... | 18.88 | ..... | 60 | 56 | T | 7 | 1,280 | ..... | 2 | 17.04 | 1.00 | ..... | 55 | ..... | 18.04 | 33.00 | ..... | 1 |
| 19.71 | ..... | ..... | 90 | 60 | T, girder | 1 | 460 | 1 | 4 | 9.08 | 8.96 | ..... | 50 | 3.34 | 14.70 | 6.10 | ..... | 2 |
| 136.82 | .23 | 14.50 | 98 | 60 | T, girder | ..... | ..... | 2 | 4 | 81.15 | 23.40 | ..... | 50 | 23.40 | 81.15 | 60.88 | ..... | 3 |
| 56.36 | 11.71 | ..... | 98 | 60 | T, girder | 11 | 2,766 | 3 | 1 | 20.31 | 35.03 | ..... | 50 | ..... | 55.34 | 38.86 | ..... | 4 |
| ..... | 25.12 | ..... | 60 | 60 | T | ..... | ..... | ..... | ..... | ..... | 24.15 | ..... | 50 | ..... | 24.15 | 49.86 | ..... | 5 |
| .25 | 31.25 | ..... | 90 | 90 | T | ..... | ..... | ..... | ..... | 22.23 | ..... | ..... | 50 | ..... | 22.23 | 22.00 | ..... | 6 |
| 2.23 | 4.00 | ..... | 90 | 50 | T, girder | 1 | 12 | ..... | ..... | .45 | 5.70 | ..... | 50 | ..... | 6.15 | 5.50 | ..... | 7 |
| 11.00 | 11.34 | ..... | 60 | 50 | T | ..... | ..... | 1 | ..... | 8.82 | 12.68 | ..... | 52 | ..... | 21.50 | 21.34 | ..... | 8 |

[5] .40 mile of construction supported by bridge structures.

[6] Technically leased.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turnouts. | Overhead trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— | |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | SOUTH CAROLINA. | | | | | | | | | | | | | | |
| | Total for state | 76.98 | 63.33 | 10.65 | 3.00 | 73.80 | ..... | ..... | 3.18 | 76.98 | ..... | 1.00 | 6.50 | 15.70 | 2.43 |
| 1 | North Augusta Electric and Improvement. | 2.38 | 2.00 | ..... | .38 | 2.38 | ..... | ..... | ..... | 2.38 | ..... | 1.00 | ..... | 2.00 | ..... |
| 2 | Charleston Railway, Gas and Electric. | 34.42 | 24.67 | 9.15 | .60 | 34.42 | ..... | ..... | ..... | 34.42 | ..... | ..... | 3.50 | ..... | 1.63 |
| 3 | Columbia Railway, Light and Power | 14.00 | 12.00 | 1.50 | .50 | 14.00 | ..... | ..... | ..... | 14.00 | ..... | ..... | ..... | 3.70 | .80 |
| 4 | Greenville Traction | 7.00 | 6.77 | ..... | .23 | 7.00 | ..... | ..... | ..... | 7.00 | ..... | ..... | ..... | ..... | ..... |
| 5 | Orangeburg City Street Railway | 1.87 | 1.75 | ..... | .12 | ..... | ..... | ..... | 1.87 | 1.87 | ..... | ..... | ..... | ..... | ..... |
| 6 | Rock Hill Water, Light and Railway. | 1.31 | 1.25 | ..... | .06 | ..... | ..... | ..... | 1.31 | 1.31 | ..... | ..... | ..... | ..... | ..... |
| 7 | Spartanburg Railway, Gas and Electric. | 16.00 | 14.89 | ..... | 1.11 | 16.00 | ..... | ..... | ..... | 16.00 | ..... | ..... | 3.00 | 10.00 | ..... |
| | SOUTH DAKOTA. | | | | | | | | | | | | | | |
| | Total for state | 2.00 | 2.00 | ..... | ..... | ..... | ..... | ..... | 2.00 | 2.00 | ..... | ..... | ..... | ..... | ..... |
| 1 | Rapid City Street Railway[2] | 2.00 | 2.00 | ..... | ..... | ..... | ..... | ..... | 2.00 | 2.00 | ..... | ..... | ..... | ..... | ..... |
| | TENNESSEE. | | | | | | | | | | | | | | |
| | Total for state | 254.20 | 199.87 | 46.63 | 7.70 | [3]248.40 | ..... | [4]5.80 | ..... | 254.20 | ..... | ..... | 13.07 | 13.13 | 6.03 |
| 1 | Bristol Belt Line | 4.25 | 4.00 | ..... | .25 | 4.25 | ..... | ..... | ..... | 4.25 | ..... | ..... | .25 | ..... | ..... |
| 2 | Chattanooga Electric Railway | 38.38 | 32.25 | 5.13 | 1.00 | 38.38 | ..... | ..... | ..... | 38.38 | ..... | ..... | 4.00 | 1.00 | ..... |
| 3 | Rapid Transit of Chattanooga | 38.50 | 37.50 | ..... | 1.00 | [3]32.70 | Steam. | [5]5.80 | ..... | 38.50 | ..... | ..... | 5.00 | 5.00 | 6.00 |
| 4 | Electric Railway of Clarksville | 5.50 | 5.30 | ..... | .20 | 5.50 | ..... | ..... | ..... | 5.50 | ..... | ..... | ..... | ..... | ..... |
| 5 | Jackson and Suburban | 3.19 | 3.04 | ..... | .15 | 3.19 | ..... | ..... | ..... | 3.19 | ..... | ..... | ..... | ..... | .03 |
| 6 | Knoxville Traction | 26.00 | 19.60 | 4.40 | 2.00 | 26.00 | ..... | ..... | ..... | 26.00 | ..... | ..... | ..... | .33 | ..... |
| 7 | Memphis Street Railway | 71.88 | 47.11 | 23.52 | 1.25 | 71.88 | ..... | ..... | ..... | 71.88 | ..... | ..... | 2.00 | 2.23 | ..... |
| 8 | Nashville Railway | 66.50 | 51.07 | 13.58 | 1.85 | 66.50 | ..... | ..... | ..... | 66.50 | ..... | ..... | 1.82 | 4.57 | ..... |
| | TEXAS. | | | | | | | | | | | | | | |
| | Total for state | 303.27 | 254.55 | 39.81 | 8.91 | 296.40 | ..... | ..... | 6.87 | 303.27 | ..... | 6.08 | 54.45 | 50.24 | 3.16 |
| 1 | Austin Electric Railway | 13.38 | 10.40 | 2.94 | .04 | 13.38 | ..... | ..... | ..... | 13.38 | ..... | ..... | ..... | ..... | ..... |
| 2 | Bonham Electric Railway, Light and Power. | 2.63 | 2.50 | ..... | .13 | 2.63 | ..... | ..... | ..... | 2.63 | ..... | ..... | .50 | ..... | ..... |
| 3 | Dallas Consolidated | 34.64 | 26.50 | 6.86 | 1.28 | 34.64 | ..... | ..... | ..... | 34.64 | ..... | ..... | .50 | .20 | ..... |
| 4 | Rapid Transit | 11.66 | 8.45 | 1.85 | 1.36 | 11.66 | ..... | ..... | ..... | 11.66 | ..... | 1.34 | ..... | .57 | ..... |
| 5 | Denison and Sherman | 16.20 | 16.00 | ..... | .20 | 16.20 | ..... | ..... | ..... | 16.20 | ..... | ..... | ..... | 8.20 | ..... |
| 6 | El Paso Electric Railway | 13.48 | 13.09 | ..... | .39 | 13.48 | ..... | ..... | ..... | 13.48 | ..... | ..... | 13.48 | ..... | ..... |
| 7 | Northern Texas Traction | 61.70 | 57.70 | 2.40 | 1.60 | 61.70 | ..... | ..... | ..... | 61.70 | ..... | ..... | 34.70 | 38.94 | 3.16 |
| 8 | Galveston Street Railway | 35.86 | 25.35 | 10.00 | .51 | 35.86 | ..... | ..... | ..... | 35.86 | ..... | ..... | .30 | ..... | ..... |
| 9 | Houston Electric | 37.20 | 31.06 | 6.13 | .01 | 37.20 | ..... | ..... | ..... | 37.20 | ..... | ..... | ..... | .08 | ..... |
| 10 | Laredo Electric and Railway | 2.85 | 2.70 | ..... | .15 | 2.85 | ..... | ..... | ..... | 2.85 | ..... | ..... | ..... | ..... | ..... |
| 11 | Longview and Junction | .63 | .63 | ..... | ..... | ..... | ..... | ..... | .63 | .63 | ..... | ..... | ..... | ..... | ..... |
| 12 | Paris Transit | 5.00 | 4.86 | ..... | .14 | 5.00 | ..... | ..... | ..... | 5.00 | ..... | ..... | 4.86 | .44 | ..... |
| 13 | San Antonio Traction | 45.51 | 34.10 | 8.72 | 2.69 | 45.51 | ..... | ..... | ..... | 45.51 | ..... | ..... | ..... | 1.08 | ..... |
| 14 | Seguin Street Railway | 1.50 | 1.50 | ..... | ..... | ..... | ..... | ..... | 1.50 | 1.50 | ..... | ..... | ..... | ..... | ..... |
| 15 | Citizens Railway | 16.29 | 15.09 | .91 | .29 | 16.29 | ..... | ..... | ..... | 16.29 | ..... | ..... | ..... | .73 | ..... |
| 16 | Waxahachie Street Railway | 2.71 | 2.65 | ..... | .06 | ..... | ..... | ..... | 2.71 | 2.71 | ..... | 2.03 | .11 | ..... | ..... |
| 17 | Lake Park Street Railroad | 2.03 | 1.97 | ..... | .06 | ..... | ..... | ..... | 2.03 | 2.03 | ..... | 2.71 | ..... | ..... | ..... |
| | UTAH. | | | | | | | | | | | | | | |
| | Total for state | 89.04 | 58.00 | 30.20 | .84 | 89.04 | ..... | ..... | ..... | 89.04 | ..... | ..... | 1.00 | .38 | ..... |
| 1 | Ogden Rapid Transit | 11.00 | 10.00 | .70 | .30 | 11.00 | ..... | ..... | ..... | 11.00 | ..... | ..... | ..... | ..... | ..... |
| 2 | Consolidated Railway and Power | 75.00 | 45.00 | 29.50 | .50 | 75.00 | ..... | ..... | ..... | 75.00 | ..... | ..... | 1.00 | ..... | ..... |
| 3 | Salt Lake and Utah Valley | 3.04 | 3.00 | ..... | .04 | 3.04 | ..... | ..... | ..... | 3.04 | ..... | ..... | ..... | .38 | ..... |
| | VERMONT. | | | | | | | | | | | | | | |
| | Total for state | 80.55 | 76.20 | .50 | 3.85 | 80.55 | ..... | ..... | ..... | 80.55 | ..... | ..... | 10.96 | 7.42 | .37 |
| 1 | Barre and Montpelier | 8.82 | 8.76 | ..... | .06 | 8.82 | ..... | ..... | ..... | 8.82 | ..... | ..... | ..... | ..... | ..... |
| 2 | Bellows Falls and Saxtons River | 6.54 | 6.25 | ..... | .29 | 6.54 | ..... | ..... | ..... | 6.54 | ..... | ..... | .04 | 1.80 | .11 |
| 3 | Brattleboro Street Railway | 5.00 | 4.75 | ..... | .25 | 5.00 | ..... | ..... | ..... | 5.00 | ..... | ..... | ..... | ..... | ..... |
| 4 | Burlington Traction | 11.22 | 10.76 | ..... | .46 | 11.22 | ..... | ..... | ..... | 11.22 | ..... | ..... | ..... | .17 | .25 |
| 5 | Rutland Street Railway | 10.45 | 9.50 | .50 | .45 | 10.45 | ..... | ..... | ..... | 10.45 | ..... | ..... | .50 | ..... | ..... |
| 6 | St. Albans Street Railway | 13.50 | 12.90 | ..... | .60 | 13.50 | ..... | ..... | ..... | 13.50 | ..... | ..... | 10.30 | .20 | ..... |
| 7 | Springfield Electric Railway | 9.11 | 8.14 | ..... | .97 | 9.11 | ..... | ..... | ..... | 9.11 | ..... | ..... | .12 | 2.25 | .01 |
| 8 | Mt. Mansfield Electric Railway | 11.25 | 10.50 | ..... | .75 | 11.25 | ..... | ..... | ..... | 11.25 | ..... | ..... | ..... | 3.00 | ..... |
| 9 | Military Post Railway | 4.66 | 4.64 | ..... | .02 | 4.66 | ..... | ..... | ..... | 4.66 | ..... | ..... | ..... | ..... | ..... |
| | VIRGINIA. | | | | | | | | | | | | | | |
| | Total for state | 359.30 | 266.84 | 78.24 | 14.22 | 355.50 | ..... | 1.80 | 2.00 | 355.79 | 3.51 | 20.13 | 17.16 | 80.83 | 2.75 |
| 1 | Charlottesville City and Suburban | 3.70 | 3.50 | ..... | .20 | 3.70 | ..... | ..... | ..... | 3.70 | ..... | ..... | ..... | 1.73 | .52 |
| 2 | Danville Railway and Electric | 5.30 | 4.18 | 1.00 | .12 | 5.30 | ..... | ..... | ..... | 5.30 | ..... | ..... | ..... | ..... | ..... |
| 3 | Washington, Arlington and Falls Church. | 11.92 | 11.33 | ..... | .59 | 11.92 | ..... | ..... | ..... | 11.92 | ..... | ..... | ..... | 8.04 | 1.80 |

[1] For details see Supplementary Table 1.
[2] This company failed to make a report; the information given was obtained from street-railway journals and directories.

**CONSTRUCTION, BY COMPANIES: 1902—Continued.**

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. Maximum. | Weight of rails per yard. Minimum. | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. | Number. |
| 51.45 | 25.53 | ..... | ..... | ..... | ..... | 12 | 8,600 | 5 | 11 | 37.55 | 22.55 | .23 | ..... | 1.29 | 59.04 | 50.00 | ..... | |
| ..... | 2.38 | ..... | 60 | 60 | T | ..... | ..... | ..... | ..... | 2.00 | ..... | ..... | 52 | ..... | 2.00 | ..... | ..... | 1 |
| 26.52 | 7.90 | ..... | 100 | 40 | T, full groove | 5 | 7,480 | 2 | 6 | 23.14 | 1.53 | ..... | 45 | 1.10 | 23.57 | 24.00 | ..... | 2 |
| 9.00 | 5.00 | ..... | 60 | 48 | T | 2 | 70 | 1 | 3 | 2.10 | 9.90 | ..... | 42 | ..... | 12.00 | 7.00 | ..... | 3 |
| 6.75 | .25 | ..... | 60 | 56 | T | 1 | 350 | 1 | 1 | 6.31 | .23 | .23 | 50 | .19 | 6.58 | 5.00 | ..... | 4 |
| 1.87 | ..... | ..... | 40 | 40 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 |
| 1.31 | ..... | ..... | 20 | 20 | T | 1 | 100 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 |
| 6.00 | 10.00 | ..... | 65 | 60 | T | 3 | 600 | ..... | 1 | 4.00 | 10.89 | ..... | 55 | ..... | 14.89 | 14.00 | ..... | 7 |
| 2.00 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| 2.00 | ..... | ..... | 25 | 25 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 154.13 | 100.07 | 21.18 | ..... | ..... | ..... | 81 | 4,631 | 90 | 67 | 150.12 | 46.75 | 3.00 | ..... | 1.50 | 198.37 | 346.50 | ..... | |
| 4.25 | ..... | ..... | 72 | 35 | Girder, T | ..... | ..... | 1 | 1 | 3.75 | .25 | ..... | 40 | ..... | 4.00 | 4.00 | ..... | 1 |
| 12.00 | 26.38 | ..... | 85 | 30 | Girder, T, full groove. | 7 | 205 | 43 | 54 | 31.25 | 1.00 | ..... | 45 | ..... | 32.25 | 47.50 | ..... | 2 |
| 2.00 | 36.50 | ..... | 90 | 40 | T | 51 | 850 | 25 | 4 | 7.00 | 30.50 | ..... | 50 | 1.00 | 36.50 | 30.00 | ..... | 3 |
| 3.75 | 1.75 | ..... | 40 | 40 | T | 1 | 6 | 1 | ..... | 5.30 | ..... | ..... | 40 | ..... | 5.30 | 3.00 | ..... | 4 |
| 3.19 | ..... | ..... | 50 | 45 | T | ..... | ..... | 1 | ..... | 3.04 | ..... | ..... | 37 | ..... | 3.04 | ..... | ..... | 5 |
| 20.00 | 6.00 | ..... | 100 | 35 | Girder, T | 1 | 200 | ..... | 3 | 13.60 | 3.00 | 3.00 | 52 | ..... | 19.60 | 30.00 | ..... | 6 |
| 57.39 | 14.49 | 21.18 | 96 | 56 | Girder, T | 16 | 1,480 | 19 | 3 | 35.11 | 12.00 | ..... | 58 | ..... | 47.11 | 210.00 | ..... | 7 |
| 51.55 | 14.95 | ..... | 80 | 35 | Girder, T | 5 | 1,890 | ..... | 2 | 51.07 | ..... | ..... | 45 | .50 | 50.57 | 22.00 | ..... | 8 |
| 222.95 | 80.32 | 10.00 | ..... | ..... | ..... | 64 | 6,113 | 17 | 104 | 204.72 | 43.08 | ..... | ..... | ..... | 247.80 | 121.64 | ..... | |
| 13.38 | ..... | ..... | 56 | 25 | T | ..... | ..... | ..... | 1 | 10.40 | ..... | ..... | 52 | ..... | 10.40 | 11.00 | ..... | 1 |
| 1.75 | .88 | ..... | 40 | 35 | T | 2 | 30 | ..... | 2 | 2.50 | ..... | ..... | 53 | ..... | 2.50 | ..... | ..... | 2 |
| 32.42 | 2.22 | ..... | 74 | 30 | T, full groove | ..... | ..... | 2 | 21 | 26.50 | ..... | ..... | 45 | ..... | 26.50 | 12.20 | ..... | 3 |
| 7.75 | 3.91 | ..... | 52 | 35 | T | 6 | 190 | ..... | 14 | 8.45 | ..... | ..... | 53 | ..... | 8.45 | 8.45 | ..... | 4 |
| 8.00 | 8.20 | ..... | 70 | 60 | T | 11 | 550 | ..... | 11 | 15.80 | .20 | ..... | 53 | ..... | 16.00 | 10.20 | ..... | 5 |
| 8.56 | 4.92 | ..... | 65 | 35 | T | 10 | 1,058 | 4 | 9 | 9.03 | 4.06 | ..... | 48 | ..... | 13.09 | 4.50 | ..... | 6 |
| 19.60 | 42.10 | ..... | 70 | 52 | T | 19 | 1,780 | ..... | 5 | 25.70 | 32.00 | ..... | 53 | ..... | 57.70 | 35.00 | ..... | 7 |
| 35.86 | ..... | ..... | 60 | 40 | T | 5 | 1,400 | ..... | 16 | 23.48 | 1.87 | ..... | 46 | ..... | 25.35 | 2.00 | ..... | 8 |
| 23.37 | 13.83 | 10.00 | 96 | 45 | T, girder | 1 | 200 | 5 | 2 | 29.06 | 2.00 | ..... | 52 | ..... | 31.06 | 7.54 | ..... | 9 |
| 2.85 | ..... | ..... | 25 | 25 | T | ..... | ..... | ..... | 1 | .50 | 2.20 | ..... | 42 | ..... | 2.70 | 3.00 | ..... | 10 |
| .51 | .12 | ..... | 16 | 16 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 11 |
| 4.57 | .43 | ..... | 60 | 56 | T | 1 | 30 | 2 | ..... | 4.86 | ..... | ..... | 70 | ..... | 4.86 | ..... | ..... | 12 |
| 42.55 | 2.96 | ..... | 74 | 30 | Girder, T | 8 | 800 | 4 | 9 | 33.35 | .75 | ..... | 44 | ..... | 34.10 | 23.25 | ..... | 13 |
| 1.50 | ..... | ..... | 30 | 30 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 14 |
| 15.54 | .75 | ..... | 56 | 36 | Girder, T | 1 | 75 | ..... | 6 | 15.09 | ..... | ..... | 45 | ..... | 15.09 | 4.50 | ..... | 15 |
| 2.71 | ..... | ..... | 20 | 16 | T | ..... | ..... | ..... | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 16 |
| 2.03 | ..... | ..... | 20 | 20 | T | ..... | ..... | ..... | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 17 |
| 78.75 | 10.29 | ..... | ..... | ..... | ..... | 10 | 295 | ..... | 9 | 17.00 | 15.00 | 26.00 | ..... | 1.00 | 57.00 | 50.00 | ..... | |
| 11.00 | ..... | ..... | 60 | 30 | T | 6 | 210 | ..... | ..... | ..... | 9.00 | 1.00 | 45 | ..... | 10.00 | 10.00 | ..... | 1 |
| 65.25 | 9.75 | ..... | 72 | 35 | T | 2 | 25 | ..... | 7 | 15.00 | 5.00 | 25.00 | 40 | 1.00 | 44.00 | 40.00 | ..... | 2 |
| 2.50 | .54 | ..... | 42 | 30 | T | 2 | 60 | ..... | 2 | 2.00 | 1.00 | ..... | 45 | ..... | 3.00 | ..... | ..... | 3 |
| 36.78 | 43.77 | ..... | ..... | ..... | ..... | 18 | 2,534 | 4 | 11 | 26.39 | 48.95 | .86 | ..... | ..... | 76.20 | 81.25 | ..... | |
| 6.94 | 1.88 | ..... | 60 | 60 | T | 3 | 222 | ..... | 5 | 5.00 | 3.76 | ..... | 52 | ..... | 8.76 | 7.00 | ..... | 1 |
| 1.79 | 4.75 | ..... | 60 | 56 | T | 3 | 265 | ..... | ..... | 6.25 | ..... | ..... | 44 | ..... | 6.25 | 4.75 | ..... | 2 |
| 3.50 | 1.50 | ..... | 56 | 48 | T | ..... | ..... | ..... | ..... | .50 | 4.25 | ..... | 50 | ..... | 4.75 | 3.00 | ..... | 3 |
| 11.22 | ..... | ..... | 60 | 48 | T | ..... | ..... | ..... | 1 | 4.00 | 6.76 | ..... | 42 | ..... | 10.76 | 5.00 | ..... | 4 |
| 7.00 | 3.45 | ..... | 60 | 60 | T | ..... | ..... | ..... | 5 | 6.00 | 3.50 | ..... | 53 | ..... | 9.50 | 5.00 | ..... | 5 |
| 3.25 | 10.25 | ..... | 60 | 50 | T | 3 | 450 | 4 | ..... | 3.25 | 9.65 | ..... | 50 | ..... | 12.90 | 20.25 | ..... | 6 |
| 1.58 | 7.53 | ..... | 60 | 56 | T | 3 | 836 | ..... | ..... | .14 | 7.14 | .86 | 50 | ..... | 8.14 | 6.25 | ..... | 7 |
| ..... | 11.25 | ..... | 60 | 60 | T | 6 | 761 | ..... | ..... | .75 | 9.75 | ..... | 42 | ..... | 10.50 | 25.00 | ..... | 8 |
| 1.50 | 3.16 | ..... | 60 | 56 | T | ..... | ..... | ..... | ..... | .50 | 4.14 | ..... | 52 | ..... | 4.64 | 5.00 | ..... | 9 |
| 161.41 | 197.89 | ..... | ..... | ..... | ..... | 81 | 32,549 | 39 | 30 | 207.01 | 50.45 | 6.42 | ..... | 19.71 | 244.17 | 376.50 | ..... | |
| 1.25 | 2.45 | ..... | 50 | 50 | T | 3 | 516 | ..... | ..... | 2.00 | 1.50 | ..... | 50 | ..... | 3.50 | 2.00 | ..... | 1 |
| 4.61 | .69 | ..... | 90 | 40 | Girder, T | ..... | ..... | 1 | 1 | 4.18 | ..... | ..... | 44 | ..... | 4.18 | 4.82 | ..... | 2 |
| 1.50 | 10.42 | ..... | 67 | 45 | T | 3 | 43 | ..... | ..... | 3.78 | 7.55 | ..... | 50 | ..... | 11.33 | 24.00 | ..... | 3 |

[3] Includes 4 miles of double trolley construction.
[4] Includes 4 miles of steam and 1.80 miles of cable.
[5] Includes 1.80 miles operated by cable.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turnouts. | Overhead trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | VIRGINIA—Continued. | | | | | | | | | | | | | | |
| 4 | Lynchburg Traction and Light | 15.50 | 13.75 | 1.50 | .25 | 15.50 | | | | 15.50 | | | | 4.00 | |
| 5 | Citizens Railway, Light and Power | 4.87 | 4.55 | .23 | .09 | 4.87 | | | | 4.87 | | 4.66 | .55 | .31 | |
| 6 | Newport News and Old Point Railway and Electric | 35.00 | 18.50 | 16.10 | .40 | 35.00 | | | | 35.00 | | 4.87 | | 3.10 | |
| 7 | Bay Shore Terminal | 12.00 | 11.50 | | .50 | 12.00 | | | | 12.00 | | | 9.75 | 6.50 | |
| 8 | Norfolk and Atlantic Terminal | 19.04 | 9.80 | 9.01 | .23 | 19.04 | | | | 19.04 | | | | 11.54 | |
| 9 | Berkley Street Railway | 14.01 | 9.32 | 3.69 | 1.00 | 14.01 | | | | 14.01 | | .26 | | | |
| 10 | Norfolk Railway and Light | 58.03 | 29.44 | 23.42 | .17 | 58.03 | | | | 58.03 | | | | 4.90 | .40 |
| 11 | Southside Railway and Development. | 12.85 | 9.50 | 2.33 | 1.02 | 12.85 | | | | 9.34 | [3]3.51 | | | | |
| 12 | Richmond and Petersburg Electric | 21.93 | 21.56 | | .37 | 21.93 | | | | 21.93 | | 1.15 | | 10.28 | |
| 13 | Old Dominion Railway | 12.21 | 11.04 | | 1.17 | 12.21 | | | | 12.21 | | | | 5.45 | |
| 14 | Norfolk, Portsmouth and Newport News. | 8.63 | 8.55 | | .08 | 8.63 | | | | 8.63 | | | 3.00 | .73 | |
| 15 | Radford Water Power | 2.98 | 2.98 | | | 2.98 | | | | 2.98 | | | | | |
| 16 | Richmond Traction | 18.75 | 10.18 | 7.96 | .61 | 18.75 | | | | 18.75 | | 4.95 | 3.58 | | |
| 17 | Richmond Passenger and Power | 25.21 | 16.68 | 7.42 | 1.11 | [4]25.21 | | | | 25.21 | | 2.12 | | | |
| 18 | Virginia Passenger and Power | 37.60 | 30.20 | 4.10 | 3.30 | 37.60 | | | | 37.60 | | | | 2.00 | |
| 19 | Roanoke Railway and Electric | 19.04 | 18.90 | | .14 | 19.04 | | | | 19.04 | | | .28 | 4.45 | |
| 20 | Tazewell Street Railway | 2.00 | 1.88 | | .12 | | | | 2.00 | 2.00 | | | | | .08 |
| 21 | Washington, Alexandria and Mt. Vernon. | 23.73 | 19.50 | 1.48 | 2.75 | 21.93 | Conduit | 1.80 | | 23.73 | | 2.11 | | 17.80 | |
| | WASHINGTON. | | | | | | | | | | | | | | |
| | Total for state | 228.93 | 181.89 | 29.64 | 17.40 | 214.33 | Cable.. | 14.60 | | 228.93 | | | 12.04 | 71.91 | 15.69 |
| 1 | Everett Railway and Electric | 9.65 | 8.39 | 1.09 | .17 | 9.65 | | | | 9.65 | | | .75 | | |
| 2 | Olympia Light and Power | 4.18 | 3.62 | .28 | .28 | 4.18 | | | | 4.18 | | | | .15 | .10 |
| 3 | Seattle Electric | 83.19 | 58.18 | 21.61 | 3.40 | 70.24 | Cable.. | 12.95 | | 83.19 | | | 8.11 | 43.64 | 14.55 |
| 4 | Seattle and Renton | 13.25 | 12.50 | | .75 | 13.25 | | | | 13.25 | | | | 9.50 | |
| 5 | Washington Water Power | 33.40 | 27.40 | | 6.00 | 33.40 | | | | 33.40 | | | | | |
| 6 | Spokane and Montrose Motor | 3.15 | 3.13 | | .02 | 3.15 | | | | 3.15 | | | | | |
| 7 | Tacoma Railway and Power | 69.11 | 56.53 | 6.18 | 6.40 | 67.46 | Cable.. | 1.65 | | 69.11 | | | 1.93 | 16.02 | |
| 8 | Northern Railway and Improvement. | 13.00 | 12.14 | .48 | .38 | 13.00 | | | | 13.00 | | | 1.25 | 2.60 | 1.04 |
| | WEST VIRGINIA. | | | | | | | | | | | | | | |
| | Total for state | 140.00 | 133.06 | 3.43 | 3.51 | 140.00 | | | | 140.00 | | .56 | 24.75 | 22.20 | 1.10 |
| 1 | Kanawha Valley Traction | 7.14 | 7.00 | | .14 | 7.14 | | | | 7.14 | | | 4.00 | | |
| 2 | East Liverpool and Rock Springs | 3.26 | 2.33 | .93 | | 3.26 | | | | 3.26 | | .56 | | 1.20 | .90 |
| 3 | Fairmont and Clarksburg | 7.10 | 7.00 | | .10 | 7.10 | | | | 7.10 | | | 4.00 | | |
| 4 | Camden Interstate Railway | 30.23 | 29.23 | | 1.00 | 30.23 | | | | 30.23 | | | | 3.50 | |
| 5 | Parkersburg, Marietta and Interurban. | 29.50 | 28.00 | | 1.50 | 29.50 | | | | 29.50 | | | 11.25 | 12.00 | |
| 6 | Wheeling and Wellsburg | 1.77 | 1.75 | | .02 | 1.77 | | | | 1.77 | | | | | |
| 7 | Wheeling Traction | 44.75 | 43.25 | 1.00 | .50 | 44.75 | | | | 44.75 | | | 1.50 | 1.50 | .20 |
| 8 | Wheeling and Elm Grove | 16.25 | 14.50 | 1.50 | .25 | 16.25 | | | | 16.25 | | | 4.00 | 4.00 | |
| | WISCONSIN. | | | | | | | | | | | | | | |
| | Total for state | 416.50 | 299.13 | 103.71 | 13.66 | [5]416.50 | | | | 416.50 | | | 17.32 | 57.16 | 11.39 |
| 1 | Wisconsin Traction, Light, Heat and Power. | 19.25 | 19.00 | | .25 | 19.25 | | | | 19.25 | | | 7.70 | 14.00 | |
| 2 | Ashland Light, Power and Street Railway. | 7.68 | 6.00 | 1.50 | .18 | 7.68 | | | | 7.68 | | | | | |
| 3 | Chippewa Valley Electric Railroad | 22.57 | 22.00 | | .57 | 22.57 | | | | 22.57 | | | | 8.00 | |
| 4 | Fond du Lac Street Railway and Light. | 6.27 | 4.93 | .80 | .54 | 6.27 | | | | 6.27 | | | | 2.73 | |
| 5 | Fox River Electric Railway and Power. | 17.13 | 15.71 | .85 | .57 | 17.13 | | | | 17.13 | | | 3.18 | | .69 |
| 6 | Janesville Street Railway | 7.41 | 7.00 | | .41 | 7.41 | | | | 7.41 | | | | | |
| 7 | La Crosse City Railway | 14.44 | 12.19 | 2.06 | .19 | 14.44 | | | | 14.44 | | | | | |
| 8 | La Crosse and Onalaska | 2.67 | 2.67 | | | 2.67 | | | | 2.67 | | | | .74 | |
| 9 | Madison Traction | 8.50 | 8.00 | | .50 | 8.50 | | | | 8.50 | | | | | |
| 10 | Manitowoc and Northern | 8.63 | 8.50 | | .13 | 8.63 | | | | 8.63 | | | | 1.50 | |
| 11 | Marinette Gas, Electric Light and Street Railway. | 5.40 | 5.21 | | .19 | 5.40 | | | | 5.40 | | | | .25 | |
| 12 | Merrill Railway and Lighting | 1.55 | 1.48 | | .07 | [6]1.55 | | | | 1.55 | | | | | |
| 13 | Milwaukee Electric Railway and Light. | 145.50 | 69.64 | 69.63 | 6.23 | 145.50 | | | | 145.50 | | | 4.46 | .57 | |
| 14 | Milwaukee Light, Heat and Traction. | 92.56 | 64.65 | 26.87 | 1.04 | 92.56 | | | | 92.56 | | | 1.98 | 17.12 | |
| 15 | Winnebago Traction | 32.00 | 30.00 | | 2.00 | 32.00 | | | | 32.00 | | | | 12.00 | |
| 16 | Sheboygan Light, Power and Railway. | 20.00 | 17.40 | 2.00 | .60 | 20.00 | | | | 20.00 | | | | .25 | 10.45 |
| 17 | Waupaca Electric Light and Railway. | 4.94 | 4.75 | | .19 | 4.94 | | | | 4.94 | | | | | .25 |

[1] For details see Supplementary Table 1.
[2] For feeder conduit system see Supplementary Table 2.
[3] Leased from steam railroad.
[4] .70 mile of this track was also operated by animal power.

**CONSTRUCTION, BY COMPANIES: 1902—Continued.**

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. | | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. (2) | Number. |
| | | | Maximum. | Minimum. | | | | | | | | | | | | | | |
| 5.84 | 9.66 | ..... | 107 | 35 | Girder, T | ..... | ..... | ..... | 1 | 13.20 | .55 | ..... | 40 | .30 | 13.45 | 16.00 | ..... | 4 |
| 3.87 | 1.00 | ..... | 90 | 65 | Girder, T | 1 | 1,640 | ..... | ..... | 4.55 | ..... | ..... | 50 | ..... | 4.55 | 4.80 | ..... | 5 |
| 12.63 | 22.37 | ..... | 90 | 65 | Girder, T | 3 | 2,000 | 1 | 1 | 16.50 | 2.00 | ..... | 50 | ..... | 18.50 | 42.00 | ..... | 6 |
| 5.00 | 7.00 | ..... | 107 | 60 | Girder, T | 3 | 3,761 | 1 | ..... | 10.79 | .71 | ..... | 43 | ..... | 11.50 | 34.50 | ..... | 7 |
| 7.27 | 11.77 | ..... | 90 | 70 | T, girder | 10 | 4,981 | ..... | 1 | 9.80 | ..... | ..... | 50 | ..... | 9.80 | 20.50 | ..... | 8 |
| 5.12 | 8.89 | ..... | 75 | 60 | Girder, T | 6 | 6,600 | 1 | 6 | 6.64 | 2.68 | ..... | 50 | ..... | 9.32 | 11.64 | ..... | 9 |
| 32.44 | 20.59 | ..... | 90 | 60 | Girder, T | 4 | 1,810 | 1 | 4 | 26.44 | 3.00 | ..... | 50 | ..... | 29.44 | 67.05 | ..... | 10 |
| 6.00 | 6.85 | ..... | 90 | 50 | Girder, T | ..... | ..... | 4 | ..... | 5.84 | 3.66 | ..... | 44 | ..... | 9.50 | 10.00 | ..... | 11 |
| .40 | 21.53 | ..... | 96 | 60 | Girder, T | 19 | 2,984 | 5 | ..... | .30 | 21.26 | ..... | 52 | ..... | 21.56 | 34.40 | ..... | 12 |
| 4.47 | 7.74 | ..... | 90 | 50 | Girder, T | 5 | 270 | 2 | 6 | 11.04 | ..... | ..... | 50 | ..... | 11.04 | 4.77 | ..... | 13 |
| 2.40 | 6.23 | ..... | 70 | 50 | T | 1 | 500 | 1 | 5 | 8.45 | .10 | ..... | 50 | ..... | 8.55 | 5.26 | ..... | 14 |
| 2.98 | ..... | ..... | 56 | 56 | T | ..... | ..... | ..... | ..... | 2.92 | .06 | ..... | 45 | ..... | 2.98 | 3.50 | ..... | 15 |
| 16.48 | 2.27 | ..... | 95 | 40 | Groove, girder, T. | ..... | ..... | 4 | ..... | 7.76 | ..... | 2.42 | 44 | 10.18 | ..... | 10.00 | ..... | 16 |
| 25.21 | ..... | ..... | 98 | 95 | Groove, girder | ..... | ..... | 12 | ..... | 16.68 | ..... | ..... | 44 | 6.23 | 10.45 | 15.00 | ..... | 17 |
| 5.64 | 31.96 | ..... | 95 | 35 | Girder, T | 8 | 3,283 | ..... | ..... | 26.20 | ..... | 4.00 | 44 | 3.00 | 27.20 | 25.00 | ..... | 18 |
| 12.10 | 6.94 | ..... | 56 | 50 | T | 4 | 212 | 2 | 5 | 11.52 | 7.38 | ..... | 40 | ..... | 18.90 | 13.26 | ..... | 19 |
| 1.55 | .45 | ..... | 24 | 24 | T | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 20 |
| 4.65 | 19.08 | ..... | 97 | 50 | Girder, T, full groove, trilby. | 11 | 3,949 | 4 | ..... | 18.42 | ..... | ..... | 52 | ..... | 18.42 | 28.00 | ..... | 21 |
| 181.91 | 47.02 | 2.99 | ..... | ..... | ..... | 52 | 39,954 | 3 | 26 | 147.50 | 27.91 | ..... | ..... | ..... | 175.41 | 181.35 | ..... | |
| 8.53 | 1.12 | ..... | 60 | 60 | T | 1 | 150 | ..... | ..... | 8.39 | ..... | ..... | 44 | ..... | 8.39 | 8.00 | ..... | 1 |
| 3.87 | .31 | ..... | 40 | 30 | T | 3 | 320 | ..... | 1 | 2.29 | 1.33 | ..... | 50 | ..... | 3.62 | 3.05 | ..... | 2 |
| 79.05 | 4.14 | ..... | 72 | 30 | T | 26 | 33,177 | ..... | 7 | 41.50 | 10.20 | ..... | 50 | ..... | 51.70 | 66.00 | ..... | 3 |
| 3.00 | 10.25 | ..... | 56 | 30 | T | 3 | 625 | ..... | ..... | .75 | 11.75 | ..... | 45 | ..... | 12.50 | 15.00 | ..... | 4 |
| 31.30 | 2.10 | 2.89 | 72 | 30 | T | 1 | 25 | 2 | 8 | 27.40 | ..... | ..... | 50 | ..... | 27.40 | 27.40 | ..... | 5 |
| 3.15 | ..... | .10 | 35 | 30 | T | ..... | ..... | ..... | ..... | 1.00 | 2.13 | ..... | 52 | ..... | 3.13 | 4.00 | ..... | 6 |
| 44.51 | 24.60 | ..... | 72 | 35 | T, girder | 11 | 3,673 | 1 | 3 | 54.03 | 2.50 | ..... | 50 | ..... | 56.53 | 49.90 | ..... | 7 |
| 8.50 | 4.50 | ..... | 56 | 40 | T | 7 | 1,984 | ..... | 7 | 12.14 | ..... | ..... | 42 | ..... | 12.14 | 8.00 | ..... | 8 |
| 79.46 | 60.54 | ..... | ..... | ..... | ..... | 23 | 11,225 | 10 | 23 | 92.81 | 40.25 | ..... | ..... | 3.50 | 129.56 | 107.76 | ..... | |
| 5.50 | 1.64 | ..... | 74 | 60 | Girder, T | ..... | ..... | ..... | ..... | 7.00 | ..... | ..... | 50 | ..... | 7.00 | 7.00 | ..... | 1 |
| 3.26 | ..... | ..... | 70 | 58 | Girder | ..... | ..... | ..... | 2 | 2.33 | ..... | ..... | 60 | ..... | 2.33 | 1.76 | ..... | 2 |
| 7.10 | ..... | ..... | 90 | 70 | Girder, T | ..... | ..... | ..... | 1 | 7.00 | ..... | ..... | 50 | ..... | 7.00 | 5.00 | ..... | 3 |
| 21.33 | 8.90 | ..... | 70 | 58 | T | 8 | 3,540 | 1 | 11 | 26.23 | 3.00 | ..... | 50 | ..... | 29.23 | 30.00 | ..... | 4 |
| 11.00 | 18.50 | ..... | 70 | 60 | T | 9 | 4,455 | 4 | ..... | 16.25 | 11.75 | ..... | 52 | 1.00 | 27.00 | 29.50 | ..... | 5 |
| 1.77 | ..... | ..... | 50 | 50 | T | ..... | ..... | ..... | ..... | 1.75 | ..... | ..... | 50 | ..... | 1.75 | .50 | ..... | 6 |
| 27.00 | 17.75 | ..... | 90 | 56 | Girder, T | 2 | 2,700 | 4 | 8 | 29.00 | 14.25 | ..... | 50 | ..... | 43.25 | 24.00 | ..... | 7 |
| 2.50 | 13.75 | ..... | 90 | 50 | Girder, T | 4 | 530 | 1 | 1 | 3.25 | 11.25 | ..... | 50 | 2.50 | 12.00 | 10.00 | ..... | 8 |
| 287.46 | 129.04 | 141.25 | ..... | ..... | ..... | 20 | 6,706 | 69 | 40 | 235.22 | 60.92 | 2.99 | ..... | 46.10 | 253.03 | 230.55 | 79.71 | |
| 5.00 | 14.25 | ..... | 70 | 45 | T, girder | 1 | 800 | 14 | 7 | 19.00 | ..... | ..... | 52 | ..... | 19.00 | 19.50 | ..... | 1 |
| 7.68 | ..... | ..... | 60 | 48 | T | 2 | 300 | ..... | 3 | 6.00 | ..... | ..... | 52 | ..... | 6.00 | .30 | ..... | 2 |
| 14.00 | 8.57 | ..... | 70 | 60 | T | 2 | 12 | 1 | 8 | 12.00 | 10.00 | ..... | 45 | ..... | 22.00 | 20.00 | ..... | 3 |
| 3.00 | 3.27 | ..... | 80 | 60 | T, girder | ..... | ..... | 2 | 4 | 4.43 | .50 | ..... | 46 | ..... | 4.93 | 6.27 | ..... | 4 |
| 10.61 | 6.52 | ..... | 78 | 45 | T, girder | 1 | 200 | 3 | 2 | 11.21 | 4.50 | ..... | 52 | ..... | 15.71 | 7.00 | ..... | 5 |
| 7.41 | ..... | ..... | 35 | 35 | T | ..... | ..... | 1 | ..... | 6.75 | .25 | ..... | 53 | ..... | 7.00 | 7.00 | ..... | 6 |
| 14.44 | ..... | ..... | 66 | 38 | T, girder | 1 | 170 | 1 | 2 | 12.19 | ..... | ..... | 44 | 1.00 | 11.19 | 4.00 | ..... | 7 |
| 1.92 | .75 | ..... | 35 | 35 | T | ..... | ..... | 1 | 1 | .67 | 2.00 | ..... | 42 | ..... | 2.67 | ..... | ..... | 8 |
| 7.00 | 1.50 | ..... | 56 | 50 | T | 1 | 75 | ..... | 5 | 7.50 | ..... | .50 | 52 | .50 | 7.50 | 9.50 | ..... | 9 |
| 4.25 | 4.38 | ..... | 60 | 60 | T | 2 | 1,200 | 1 | 4 | 4.25 | 4.25 | ..... | 52 | .50 | 8.00 | 4.00 | ..... | 10 |
| 5.15 | .25 | ..... | 60 | 40 | T | 1 | 16 | 8 | ..... | 5.21 | ..... | ..... | 53 | ..... | 5.21 | 3.00 | ..... | 11 |
| 1.55 | ..... | ..... | 38 | 38 | Girder | ..... | ..... | ..... | 1 | 1.48 | ..... | ..... | 52 | ..... | 1.48 | .09 | ..... | 12 |
| 134.98 | 10.52 | 120.59 | 80 | 40 | T, girder | ..... | ..... | 12 | ..... | 66.09 | 2.34 | 1.21 | 50 | 38.20 | 31.44 | 29.23 | 79.71 | 13 |
| 35.13 | 57.43 | 20.66 | 75 | 40 | T, girder | 6 | 3,383 | 10 | ..... | 44.01 | 19.36 | 1.28 | 49 | 3.90 | 60.75 | 82.71 | (3) | 14 |
| 28.00 | 4.00 | ..... | 60 | 48 | T | 3 | 550 | 11 | 3 | 15.59 | 14.41 | ..... | 42 | 2.00 | 28.00 | 13.20 | ..... | 15 |
| 6.00 | 14.00 | ..... | 70 | 45 | T | ..... | ..... | 4 | ..... | 17.40 | ..... | ..... | 52 | ..... | 17.40 | 14.00 | ..... | 16 |
| 1.34 | 3.60 | ..... | 50 | 50 | T, girder | ..... | ..... | ..... | ..... | 1.44 | 3.31 | ..... | 52 | ..... | 4.75 | .75 | ..... | 17 |

[1] Includes 1.55 miles of double trolley construction.

[2] Double trolley construction.

[3] Not reported.

TABLE 94.—ROADBED, TRACK, AND ELECTRIC

| Number. | STATE AND NAME OF COMPANY. | TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total owned and leased. | Main track. | | Sidings and turnouts. | Overhead trolley. | Other mechanical traction. | | Animal | Owned. | Leased. | Operated under trackage rights. | Constructed and opened for operation during year. | On private right of way— |
| | | | First. | Second. | | | Kind. | Miles. | | | | | | Owned by company. | Not owned by company. |
| | HAWAII. | | | | | | | | | | | | | | |
| | Total for territory | 28.70 | 27.70 | ..... | 1.00 | 16.70 | ..... | ..... | 12.00 | 28.70 | ..... | ..... | 6.07 | 2.50 | ..... |
| 1 | Hawaiian Tramways | 12.00 | 11.00 | ..... | 1.00 | ..... | ..... | ..... | 12.00 | 12.00 | ..... | ..... | ..... | ..... | ..... |
| 2 | Honolulu Rapid Transit and Land | 14.20 | 14.20 | ..... | ..... | 14.20 | ..... | ..... | ..... | 14.20 | ..... | ..... | 6.07 | ..... | ..... |
| 3 | Pacific Heights Electric Rwy | 2.50 | 2.50 | ..... | ..... | 2.50 | ..... | ..... | ..... | 2.50 | ..... | ..... | ..... | 2.50 | ..... |
| | PORTO RICO. | | | | | | | | | | | | | | |
| | Total | 12.56 | 12.11 | ..... | .45 | 9.43 | ..... | ..... | 3.13 | 12.56 | ..... | ..... | ..... | ..... | ..... |
| 1 | Tramway Stock | 3.13 | 3.00 | ..... | .13 | ..... | ..... | ..... | 3.13 | 3.13 | ..... | ..... | ..... | ..... | ..... |
| 2 | San Juan Light and Transit | 9.43 | 9.11 | ..... | .32 | 9.43 | ..... | ..... | ..... | 9.43 | ..... | ..... | ..... | ..... | ..... |

[1] For details see Supplementary Table 1.

CONSTRUCTION, BY COMPANIES: 1902—Continued.

| TRACK—CHARACTER AND LENGTH IN SINGLE-TRACK MILES—continued. | | | | | | BRIDGES AND TUNNELS OWNED.[1] | | STEAM RAILROAD CROSSINGS, NUMBER. | | ELECTRIC-LINE CONSTRUCTION, MILES. | | | | | | FEEDER WIRE, MILES. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Within city limits. | Outside city limits. | Equipped with cast-welded joints. | Weight of rails per yard. | | Style of rail. | No. | Length, feet. | Protected. | Unprotected. | Span wire. | Side bracket | Center pole. | Poles to the mile. | Steel or iron poles. | Wooden poles. | Overhead. | Underground. | Number. |
| | | | Maximum. | Minimum. | | | | | | | | | | | | | | |
| 26.20 | 2.50 | ..... | ..... | ..... | ..... | 9 | 298 | ..... | ..... | 10.60 | 6.10 | ..... | ..... | ..... | 16.70 | ..... | ..... | |
| 12.00 | ..... | ..... | 35 | 35 | Full groove..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 14.20 | ..... | ..... | 110 | 85 | Girder ..... | 8 | 238 | ..... | ..... | 10.60 | 3.60 | ..... | 52 | ..... | 14.20 | ..... | ..... | 2 |
| ..... | 2.50 | ..... | 40 | 40 | T ..... | 1 | 60 | ..... | ..... | ..... | 2.50 | ..... | 52 | ..... | 2.50 | ..... | ..... | 3 |
| 3.88 | 8.68 | ..... | ..... | ..... | ..... | 2 | 518 | 1 | 1 | 9.11 | ..... | ..... | ..... | ..... | 9.11 | 9.00 | ..... | |
| 3.13 | ..... | ..... | 18 | 18 | T ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| .75 | 8.68 | ..... | 85 | 40 | T, girder..... | 2 | 518 | ..... | 1 | 9.11 | ..... | ..... | 45 | ..... | 9.11 | 9.00 | ..... | 2 |

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. |
| | | | | | | Closed and open. | Passenger and express. | | | | | | |
| | UNITED STATES | 66,784 | 60,290 | 32,658 | 24,259 | 3,134 | 239 | 1,114 | 2,860 | 1,727 | 793 | 50,699 | 16,085 |
| | ALABAMA. | | | | | | | | | | | | |
| | Total for state | 370 | 311 | 175 | 125 | 8 | 3 | 21 | 38 | | | 283 | 137 |
| 1 | Anniston Electric and Gas | 19 | 15 | 8 | 7 | | | 2 | 2 | | | 17 | 2 |
| 2 | Birmingham Railway, Light and Power | 181 | 142 | 89 | 51 | | 2 | 11 | 28 | | | 101 | 80 |
| 3 | Decatur Street Railway | 5 | 5 | 5 | | | | | | | | | 5 |
| 4 | Alabama City, Gadsden and Attalla | 8 | 5 | 5 | | | | 3 | | | | 5 | 3 |
| 5 | Huntsville Railway, Light and Power | 5 | 5 | 5 | | | | | | | | 5 | |
| 6 | Mobile Light and Railroad | 107 | 101 | 43 | 49 | 8 | 1 | | 6 | | | 76 | 31 |
| 7 | Montgomery Street Railway | 23 | 22 | 12 | 10 | | | | 1 | | | 22 | 1 |
| 8 | Selma Street and Suburban | 12 | 11 | 5 | 6 | | | | 1 | | | 7 | 5 |
| 9 | Tuscaloosa Belt Railway | 10 | 5 | 3 | 2 | | | 5 | | | | | 10 |
| | ARIZONA. | | | | | | | | | | | | |
| | Total for territory | 19 | 17 | 5 | 8 | 4 | | | 2 | | | 12 | 7 |
| 1 | Phoenix Railway | 15 | 14 | 5 | 5 | 4 | | | 1 | | | 12 | 3 |
| 2 | Tucson Street Railway | 4 | 3 | | 3 | | | | 1 | | | | 4 |
| | ARKANSAS. | | | | | | | | | | | | |
| | Total for state | 135 | 130 | 85 | 45 | | | 2 | 3 | | | 89 | 46 |
| 1 | Citizens Electric | 14 | 12 | 5 | 7 | | | 2 | | | | 9 | 5 |
| 2 | Fort Smith Traction | 12 | 12 | 12 | | | | | | | | 11 | 1 |
| 3 | Fort Smith and Van Buren | 2 | 1 | 1 | | | | | 1 | | | 2 | |
| 4 | Hot Springs Street Railroad | 24 | 24 | 14 | 10 | | | | | | | 18 | 6 |
| 5 | Little Rock Traction and Electric | 65 | 64 | 41 | 23 | | | | 1 | | | 40 | 25 |
| 6 | Citizens Light and Transit | 12 | 11 | 9 | 2 | | | | 1 | | | 9 | 3 |
| 7 | Texarkana Railway | 6 | 6 | 3 | 3 | | | | | | | | 6 |
| | CALIFORNIA. | | | | | | | | | | | | |
| | Total for state | 2,056 | 1,850 | 358 | 279 | 1,208 | 10 | 48 | 156 | 2 | | 1,139 | 917 |
| 1 | Bakersfield and Kern Electric | 4 | 4 | 4 | | | | | | | | 4 | |
| 2 | Fresno, Belmont and Yosemite | 5 | 5 | 3 | 2 | | | | | | | | 5 |
| 3 | Fresno Railroad | 7 | 6 | 3 | 3 | | | | | 1 | | | 7 |
| 4 | Nevada County Traction | 4 | 4 | | | 4 | | | | | | 4 | |
| 5 | Los Angeles Electric Incline | 2 | 2 | | 2 | | | | | | | | 2 |
| 6 | Los Angeles Railway | 182 | 182 | 7 | 22 | 153 | | | | | | 182 | |
| 7 | Los Angeles and Pasadena | 40 | 29 | | | 25 | 4 | 3 | 8 | | | 34 | 6 |
| 8 | Los Angeles Pacific Railway | [1] 124 | 77 | 37 | | 40 | | 30 | 17 | | | 85 | 39 |
| 9 | Pacific Electric Railway | 26 | 24 | 8 | 13 | 3 | | | 2 | | | 3 | 23 |
| 10 | Los Angeles Traction | 47 | 46 | | 10 | 36 | | | 1 | | | 41 | 6 |
| 11 | Marysville and Yuba City | 7 | 7 | 3 | 4 | | | | | | | | 7 |
| 12 | Monrovia Street Railway | 2 | 2 | | 2 | | | | | | | | 2 |
| 13 | Monterey and Pacific Grove | 12 | 12 | 7 | 4 | 1 | | | | | | | 12 |
| 14 | Oakland Transit Consolidated | 159 | 143 | 1 | 5 | 137 | | 5 | 11 | | | 150 | 9 |
| 15 | Ontario and San Antonio Heights | 3 | 3 | 2 | 1 | | | | | | | 3 | |
| 16 | Pasadena and Mt. Lowe | 13 | 11 | 1 | 4 | | 6 | | 1 | 1 | | 7 | 6 |
| 17 | Paso Robles Street Car | 2 | 2 | 2 | | | | | | | | | 2 |
| 18 | Petaluma Street Railway | 6 | 6 | 1 | 5 | | | | | | | | 6 |
| 19 | Pomona Street Railway | 1 | 1 | | | 1 | | | | | | | 1 |
| 20 | Redlands Street Railway | 7 | 6 | 1 | 1 | 4 | | | 1 | | | 6 | 1 |
| 21 | Riverside and Arlington | 8 | 8 | 1 | 4 | 3 | | | | | | 5 | 3 |
| 22 | Sacramento Electric, Gas and Railway | 42 | 40 | 6 | 7 | 27 | | | 2 | | | 42 | |
| 23 | San Bernardino Valley | 2 | 2 | | | 2 | | | | | | 2 | |
| 24 | San Diego Electric Railway | 19 | 18 | 3 | 3 | 12 | | | 1 | | | 19 | |
| 25 | Geary Street, Park and Ocean | 58 | 58 | 24 | 29 | 5 | | | | | | | 58 |
| 26 | California Street Cable | 60 | 60 | 10 | | 50 | | | | | | | 60 |
| 27 | Presidio and Ferries | 74 | 74 | 35 | 39 | | | | | | | | 74 |
| 28 | United Railroads of San Francisco | 1,005 | 897 | 180 | 68 | 649 | | 5 | 103 | | | 476 | 529 |
| 29 | San Jose Railroad | 29 | 27 | | 9 | 18 | | | 2 | | | 24 | 5 |
| 30 | San Jose and Santa Clara | 32 | 26 | 8 | 9 | 9 | | 5 | 1 | | | 20 | 12 |
| 31 | Santa Barbara Consolidated | 13 | 11 | | 2 | 9 | | | 2 | | | 9 | 4 |
| 32 | Santa Cruz Electric | 9 | 8 | | 6 | 2 | | | 1 | | | 8 | 1 |
| 33 | East Santa Cruz | 10 | 8 | 3 | 5 | | | | 2 | | | | 10 |
| 34 | Santa Rosa Street Railway | 17 | 17 | 8 | 9 | | | | | | | | 17 |
| 35 | Stockton Electric | 25 | 24 | | 11 | 13 | | | 1 | | | 15 | 10 |
| | COLORADO. | | | | | | | | | | | | |
| | Total for state | 393 | 352 | 99 | 86 | 167 | | 1 | 24 | 11 | 5 | 345 | 48 |
| 1 | Boulder Railway and Utility | 13 | 12 | 4 | 8 | | | | 1 | | | 5 | 8 |
| 2 | Colorado Springs and Cripple Creek | 12 | 10 | 10 | | | | 1 | 1 | | | 8 | 4 |
| 3 | Colorado Springs Rapid Transit | 42 | 38 | 12 | 17 | 9 | | | 2 | 2 | | 24 | 18 |
| 4 | Denver, Lakewood and Golden | 6 | 6 | 6 | | | | | | | | 3 | 3 |
| 5 | Denver City Tramway | 267 | 237 | 48 | 37 | 152 | | | 18 | 7 | 5 | 267 | |
| 6 | Durango Railway and Realty | 5 | 4 | 2 | 2 | | | | | 1 | | 4 | 1 |
| 7 | Grand Junction (municipal) | 2 | 2 | 2 | | | | | | | | | 2 |
| 8 | Pueblo Traction and Lighting | 46 | 43 | 15 | 22 | 6 | | | 2 | 1 | | 34 | 12 |

| Number. | STATE AND NAME OF COMPANY. | With fenders. |
|---|---|---|
| | UNITED STATES | 43,273 |
| | ALABAMA. | |
| | Total for state | 27 |
| 1 | Anniston Electric and Gas | |
| 2 | Birmingham Railway, Light and Power | |
| 3 | Decatur Street Railway | |
| 4 | Alabama City, Gadsden and Attalla | |
| 5 | Huntsville Railway, Light and Power | 5 |
| 6 | Mobile Light and Railroad | |
| 7 | Montgomery Street Railway | 22 |
| 8 | Selma Street and Suburban | |
| 9 | Tuscaloosa Belt Railway | |
| | ARIZONA. | |
| | Total for territory | 6 |
| 1 | Phoenix Railway | 6 |
| 2 | Tucson Street Railway | |
| | ARKANSAS. | |
| | Total for state | |
| 1 | Citizens Electric | |
| 2 | Fort Smith Traction | |
| 3 | Fort Smith and Van Buren | |
| 4 | Hot Springs Street Railroad | |
| 5 | Little Rock Traction and Electric | |
| 6 | Citizens Light and Transit | |
| 7 | Texarkana Railway | |
| | CALIFORNIA. | |
| | Total for state | 1,741 |
| 1 | Bakersfield and Kern Electric | 4 |
| 2 | Fresno, Belmont and Yosemite | |
| 3 | Fresno Railroad | |
| 4 | Nevada County Traction | |
| 5 | Los Angeles Electric Incline | |
| 6 | Los Angeles Railway | 182 |
| 7 | Los Angeles and Pasadena | 40 |
| 8 | Los Angeles Pacific Railway | 79 |
| 9 | Pacific Electric Railway | 14 |
| 10 | Los Angeles Traction | 46 |
| 11 | Marysville and Yuba City | |
| 12 | Monrovia Street Railway | |
| 13 | Monterey and Pacific Grove | |
| 14 | Oakland Transit Consolidated | 150 |
| 15 | Ontario and San Antonio Heights | |
| 16 | Pasadena and Mt. Lowe | |
| 17 | Paso Robles Street Car | |
| 18 | Petaluma Street Railway | |
| 19 | Pomona Street Railway | |
| 20 | Redlands Street Railway | 6 |
| 21 | Riverside and Arlington | 5 |
| 22 | Sacramento Electric, Gas and Railway | 42 |
| 23 | San Bernardino Valley | 2 |
| 24 | San Diego Electric Railway | 19 |
| 25 | Geary Street, Park and Ocean | 34 |
| 26 | California Street Cable | 60 |
| 27 | Presidio and Ferries | 35 |
| 28 | United Railroads of San Francisco | 994 |
| 29 | San Jose Railroad | |
| 30 | San Jose and Santa Clara | 8 |
| 31 | Santa Barbara Consolidated | 13 |
| 32 | Santa Cruz Electric | 8 |
| 33 | East Santa Cruz | |
| 34 | Santa Rosa Street Railway | |
| 35 | Stockton Electric | |
| | COLORADO. | |
| | Total for state | 236 |
| 1 | Boulder Railway and Utility | 4 |
| 2 | Colorado Springs and Cripple Creek | |
| 3 | Colorado Springs Rapid Transit | 20 |
| 4 | Denver, Lakewood and Golden | 3 |
| 5 | Denver City Tramway | 203 |
| 6 | Durango Railway and Realty | |
| 7 | Grand Junction (municipal) | |
| 8 | Pueblo Traction and Lighting | 6 |

[1] Exclusive of 2 steam locomotives.

EQUIPMENT, BY COMPANIES: 1902.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | Stations. | Car houses. | Horses. | Lamps for buildings, shops, car houses, etc. | | Miles of exclusive telephone lines. | Number. |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | | | | Arc. | Incandescent. | | |
| 63,690 | 7,905 | 5,148 | 30,159 | 19,021 | 11,138 | 62,369 | 55,703 | 6,666 | 2,076 | 1,634 | 8,901 | 5,282 | 235,955 | 5,868 | |
| 370 | 61 | ..... | 92 | 62 | 30 | 314 | 295 | 19 | 21 | 15 | 54 | 48 | 2,700 | ..... | |
| 19 | ..... | ..... | ..... | ..... | ..... | 15 | 15 | ..... | 5 | 1 | 1 | 17 | 145 | ..... | 1 |
| 181 | 55 | ..... | 86 | 59 | 27 | 145 | 136 | 9 | ..... | 4 | 8 | 6 | 1,600 | ..... | 2 |
| 5 | ..... | ..... | ..... | ..... | ..... | 5 | ..... | 5 | ..... | 1 | 32 | ..... | ..... | ..... | 3 |
| 8 | ..... | ..... | 8 | 8 | ..... | 5 | 5 | ..... | 5 | 1 | ..... | ..... | 75 | ..... | 4 |
| 5 | ..... | ..... | ..... | ..... | ..... | 5 | 5 | ..... | ..... | 1 | ..... | ..... | 22 | ..... | 5 |
| 107 | 1 | ..... | ..... | ..... | ..... | 101 | 101 | ..... | ..... | 3 | 12 | 23 | 556 | ..... | 6 |
| 23 | ..... | ..... | ..... | ..... | ..... | 22 | 22 | ..... | ..... | 2 | ..... | 2 | 50 | ..... | 7 |
| 12 | ..... | ..... | ..... | ..... | ..... | 11 | 11 | ..... | 3 | 1 | ..... | ..... | 250 | ..... | 8 |
| 10 | 5 | ..... | 3 | ..... | 3 | 5 | ..... | 5 | 8 | 1 | 1 | ..... | 2 | ..... | 9 |
| 19 | ..... | ..... | ..... | ..... | ..... | 15 | 12 | 3 | ..... | 2 | 12 | 6 | 41 | ..... | |
| 15 | ..... | ..... | ..... | ..... | ..... | 12 | 12 | ..... | ..... | 1 | 4 | 6 | 40 | ..... | 1 |
| 4 | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 3 | ..... | 1 | 8 | ..... | 1 | ..... | 2 |
| 135 | ..... | ..... | 27 | 12 | 15 | 133 | 126 | 7 | ..... | 7 | 35 | 21 | 355 | ..... | |
| 14 | ..... | ..... | 4 | 3 | 1 | 13 | 13 | ..... | ..... | 1 | 1 | ..... | 125 | ..... | 1 |
| 12 | ..... | ..... | ..... | ..... | ..... | 12 | 11 | 1 | ..... | 1 | 3 | ..... | 100 | ..... | 2 |
| 2 | ..... | ..... | ..... | ..... | ..... | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| 24 | ..... | ..... | 14 | ..... | 14 | 24 | 24 | ..... | ..... | 2 | 4 | ..... | ..... | ..... | 4 |
| 65 | ..... | ..... | ..... | ..... | ..... | 65 | 65 | ..... | ..... | 1 | 4 | 21 | 30 | ..... | 5 |
| 12 | ..... | ..... | 9 | 9 | ..... | 11 | 11 | ..... | ..... | 1 | 1 | ..... | 100 | ..... | 6 |
| 6 | ..... | ..... | ..... | ..... | ..... | 6 | ..... | 6 | ..... | 1 | 22 | ..... | ..... | ..... | 7 |
| 2,016 | 226 | 656 | 100 | 100 | ..... | 1,842 | 1,084 | 758 | 65 | 51 | 334 | 134 | 8,446 | 175 | |
| 4 | ..... | ..... | ..... | ..... | ..... | 4 | 4 | ..... | ..... | 1 | ..... | ..... | 65 | 1 | 1 |
| 5 | ..... | ..... | ..... | ..... | ..... | 5 | ..... | 5 | ..... | 1 | 12 | ..... | ..... | ..... | 2 |
| 7 | ..... | ..... | ..... | ..... | ..... | 4 | ..... | 4 | ..... | 1 | 6 | ..... | ..... | ..... | 3 |
| 4 | ..... | 4 | 4 | 4 | ..... | 4 | 4 | ..... | 1 | ..... | ..... | ..... | 26 | 5 | 4 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 50 | ..... | 5 |
| 182 | 62 | 7 | ..... | ..... | ..... | 182 | 182 | ..... | ..... | 1 | ..... | 30 | 300 | 15 | 6 |
| 40 | 32 | 3 | 32 | 32 | ..... | 40 | 40 | ..... | ..... | 1 | 8 | 15 | 150 | 10 | 7 |
| 124 | 81 | ..... | 63 | 63 | ..... | 79 | 79 | ..... | 38 | 3 | ..... | 10 | 540 | 70 | 8 |
| ..... | 3 | 23 | ..... | ..... | ..... | 26 | 3 | 23 | ..... | 2 | ..... | 2 | 20 | ..... | 9 |
| 46 | ..... | ..... | ..... | ..... | ..... | 47 | 47 | ..... | ..... | 1 | 2 | ..... | ..... | ..... | 10 |
| 7 | ..... | ..... | ..... | ..... | ..... | 7 | ..... | 7 | ..... | 1 | 16 | ..... | ..... | ..... | 11 |
| 2 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | ..... | 1 | 4 | ..... | ..... | ..... | 12 |
| 12 | ..... | ..... | ..... | ..... | ..... | 12 | ..... | 12 | 1 | 1 | 45 | ..... | ..... | ..... | 13 |
| 150 | 4 | 40 | 1 | 1 | ..... | 152 | 150 | 2 | 2 | 5 | 5 | 20 | 400 | ..... | 14 |
| 3 | ..... | ..... | ..... | ..... | ..... | 3 | 3 | ..... | ..... | 1 | ..... | 1 | 25 | ..... | 15 |
| 11 | ..... | ..... | ..... | ..... | ..... | 9 | 9 | ..... | 2 | 1 | 12 | 10 | 100 | 5 | 16 |
| 2 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | ..... | ..... | 2 | ..... | ..... | ..... | 17 |
| 6 | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 3 | ..... | 1 | 2 | ..... | ..... | ..... | 18 |
| 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... | 19 |
| 7 | 2 | ..... | ..... | ..... | ..... | 6 | 6 | ..... | 1 | 1 | 1 | ..... | 40 | 3 | 20 |
| 8 | 2 | ..... | ..... | ..... | ..... | 5 | 5 | ..... | ..... | 1 | 2 | ..... | 100 | ..... | 21 |
| 42 | ..... | ..... | ..... | ..... | ..... | 41 | 41 | ..... | 1 | 1 | 2 | 3 | 100 | ..... | 22 |
| 2 | 2 | ..... | ..... | ..... | ..... | 2 | 2 | ..... | ..... | 1 | ..... | ..... | 25 | ..... | 23 |
| 19 | ..... | ..... | ..... | ..... | ..... | 19 | 19 | ..... | ..... | ..... | 1 | ..... | 60 | ..... | 24 |
| 58 | ..... | 34 | ..... | ..... | ..... | 34 | ..... | 34 | ..... | 1 | 1 | ..... | ..... | ..... | 25 |
| 60 | ..... | 60 | ..... | ..... | ..... | 60 | ..... | 60 | ..... | 2 | 1 | 2 | 140 | 5 | 26 |
| 74 | ..... | 74 | ..... | ..... | ..... | 74 | ..... | 74 | ..... | ..... | 40 | 10 | 40 | 3 | 27 |
| 1,005 | 38 | 411 | ..... | ..... | ..... | 902 | 401 | 501 | 12 | 14 | 149 | 8 | 6,000 | 48 | 28 |
| 29 | ..... | ..... | ..... | ..... | ..... | 24 | 24 | ..... | ..... | ..... | 2 | ..... | 30 | ..... | 29 |
| 32 | ..... | ..... | ..... | ..... | ..... | 26 | 24 | 2 | 2 | 2 | 3 | 18 | 125 | 10 | 30 |
| 13 | ..... | ..... | ..... | ..... | ..... | 9 | 9 | ..... | ..... | 1 | ..... | 5 | 20 | ..... | 31 |
| 9 | ..... | ..... | ..... | ..... | ..... | 8 | 8 | ..... | 1 | 1 | ..... | ..... | 20 | ..... | 32 |
| 10 | ..... | ..... | ..... | ..... | ..... | 10 | ..... | 10 | ..... | 1 | 6 | ..... | ..... | ..... | 33 |
| 17 | ..... | ..... | ..... | ..... | ..... | 17 | ..... | 17 | ..... | 2 | 8 | ..... | ..... | ..... | 34 |
| 25 | ..... | ..... | ..... | ..... | ..... | 24 | 24 | ..... | 1 | 1 | 4 | ..... | 70 | ..... | 35 |
| 384 | 8 | ..... | 210 | 202 | 8 | 318 | 313 | 5 | 10 | 18 | 17 | 30 | 3,069 | 17 | |
| 13 | ..... | ..... | ..... | ..... | ..... | 13 | 13 | ..... | ..... | ..... | 1 | ..... | 24 | ..... | 1 |
| 8 | 8 | ..... | 10 | 10 | ..... | 8 | 8 | ..... | 6 | 1 | ..... | 5 | 20 | 14 | 2 |
| 38 | ..... | ..... | 21 | 21 | ..... | 38 | 38 | ..... | ..... | 3 | 2 | ..... | 110 | ..... | 3 |
| 6 | ..... | ..... | 6 | ..... | 6 | 6 | 3 | 3 | ..... | 1 | ..... | ..... | 10 | ..... | 4 |
| 267 | ..... | ..... | 154 | 154 | ..... | 203 | 203 | ..... | 4 | 10 | 9 | ..... | 2,695 | ..... | 5 |
| 4 | ..... | ..... | 2 | ..... | 2 | 4 | 4 | ..... | ..... | 1 | ..... | ..... | 10 | ..... | 6 |
| 2 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | ..... | 1 | 1 | ..... | ..... | ..... | 7 |
| 46 | ..... | ..... | 17 | 17 | ..... | 44 | 44 | ..... | ..... | 1 | 4 | 25 | 200 | 3 | 8 |

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | | With fenders. |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. | |
| | | | | | | Closed and open. | Passenger and express. | | | | | | | |
| | CONNECTICUT. | | | | | | | | | | | | | |
| | Total for state | 1,380 | 1,196 | 545 | 647 | ..... | 4 | 48 | 46 | 69 | 21 | 1,213 | 167 | 1,057 |
| 1 | Branford Lighting and Water | [1] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 2 | Connecticut Railway and Lighting | 360 | 310 | 148 | 162 | ..... | ..... | 4 | 18 | 24 | 4 | 350 | 10 | 299 |
| 3 | Bristol and Plainville Tramway | 18 | 16 | 6 | 10 | ..... | ..... | ..... | ..... | 2 | ..... | 16 | 2 | ..... |
| 4 | Danbury and Bethel | 37 | 34 | 13 | 21 | ..... | ..... | ..... | 1 | 1 | 1 | 24 | 13 | 22 |
| 5 | Greenwich Tramway | 13 | 13 | 3 | 10 | ..... | ..... | ..... | ..... | ..... | ..... | 13 | ..... | 13 |
| 6 | Hartford and Springfield | 30 | 26 | 13 | 13 | ..... | ..... | ..... | 2 | 2 | ..... | 16 | 14 | 16 |
| 7 | Farmington Street Railway | 25 | 18 | 6 | 12 | ..... | ..... | 4 | 1 | 2 | ..... | 21 | 4 | 20 |
| 8 | Hartford Street Railway | 262 | 212 | 111 | 101 | ..... | ..... | 29 | 5 | 7 | 9 | 232 | 30 | 223 |
| 9 | Hartford, Manchester and Rockville | 39 | 34 | 13 | 21 | ..... | ..... | 1 | 2 | 2 | ..... | 38 | 1 | 35 |
| 10 | New York, New Haven and Hartford (Berlin system). | 31 | 31 | 11 | 18 | ..... | 2 | ..... | ..... | ..... | ..... | 12 | 19 | 12 |
| 11 | Meriden, Southington and Compounce | 24 | 18 | 6 | 12 | ..... | ..... | ..... | 5 | 1 | ..... | 19 | 5 | 18 |
| 12 | Meriden Electric Railroad | 55 | 48 | 21 | 27 | ..... | ..... | 2 | 1 | 3 | 1 | 34 | 21 | 34 |
| 13 | Middletown Street Railway | 26 | 21 | 7 | 14 | ..... | ..... | 2 | 1 | 2 | ..... | 14 | 12 | ..... |
| 14 | Manufacturers Railroad | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 1 | ..... | 2 | ..... | ..... |
| 15 | Fair Haven and Westville | 301 | 276 | 130 | 146 | ..... | ..... | 3 | 6 | 10 | 6 | 296 | 5 | 285 |
| 16 | New London Street Railway | 27 | 25 | 7 | 18 | ..... | ..... | ..... | ..... | 2 | ..... | 26 | 1 | 25 |
| 17 | Montville Street Railway | 18 | 14 | 6 | 8 | ..... | ..... | ..... | 1 | 3 | ..... | 12 | 6 | 14 |
| 18 | Norwich Street Railway | 40 | 37 | 19 | 18 | ..... | ..... | ..... | ..... | 3 | ..... | 28 | 12 | 29 |
| 19 | Peoples Tramway | 20 | 18 | 6 | 12 | ..... | ..... | ..... | 1 | 1 | ..... | 19 | 1 | ..... |
| 20 | Stamford Street Railroad | 24 | 23 | 10 | 13 | ..... | ..... | ..... | ..... | 1 | ..... | 22 | 2 | 6 |
| 21 | New York, New Haven and Hartford (New Canaan branch). | 4 | 4 | 2 | ..... | ..... | 2 | ..... | ..... | ..... | ..... | 2 | 2 | 2 |
| 22 | Suffield Street Railway | 4 | 4 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 4 | ..... | 4 |
| 23 | Torrington and Winchester | 20 | 14 | 5 | 9 | ..... | ..... | 3 | 1 | 2 | ..... | 13 | 7 | ..... |
| | DELAWARE. | | | | | | | | | | | | | |
| | Total for state | 163 | 151 | 80 | 68 | ..... | 3 | ..... | 7 | 1 | 4 | 155 | 8 | ..... |
| 1 | Wilmington and New Castle | 15 | 12 | 4 | 6 | ..... | 2 | ..... | 2 | 1 | ..... | 7 | 8 | ..... |
| 2 | Peoples Railway | 53 | 50 | 30 | 19 | ..... | 1 | ..... | 2 | ..... | 1 | 53 | ..... | ..... |
| 3 | Wilmington City | 95 | 89 | 46 | 43 | ..... | ..... | ..... | 3 | ..... | 3 | 95 | ..... | ..... |
| | DISTRICT OF COLUMBIA. | | | | | | | | | | | | | |
| | Total for district | 1,010 | 977 | 409 | 533 | 35 | ..... | 4 | 4 | 2 | 23 | 638 | 372 | 755 |
| 1 | Anacostia and Potomac River | 48 | 44 | 16 | 3 | 25 | ..... | ..... | ..... | ..... | 4 | 44 | 4 | 44 |
| 2 | Brightwood Railway | 7 | 5 | 2 | 3 | ..... | ..... | ..... | ..... | ..... | 2 | 2 | 5 | 2 |
| 3 | Capital Traction | 459 | 448 | 223 | 225 | ..... | ..... | 2 | 3 | ..... | 6 | 234 | 225 | 226 |
| 4 | City and Suburban of Washington | 57 | 54 | 39 | 5 | 10 | ..... | ..... | ..... | 1 | 2 | 57 | ..... | 54 |
| 5 | Columbia Railway | 54 | 52 | 22 | 30 | ..... | ..... | ..... | ..... | ..... | 2 | 52 | 2 | 52 |
| 6 | Georgetown and Tennallytown | 2 | [2] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | ..... |
| 7 | Metropolitan Railroad | 360 | 352 | 102 | 250 | ..... | ..... | 2 | 1 | ..... | 5 | 227 | 133 | 355 |
| 8 | Washington and Great Falls | 23 | 22 | 5 | 17 | ..... | ..... | ..... | ..... | 1 | ..... | 22 | 1 | 22 |
| | FLORIDA. | | | | | | | | | | | | | |
| | Total for state | 111 | 101 | 50 | 50 | ..... | 1 | 6 | 4 | ..... | ..... | 85 | 26 | 87 |
| 1 | Fort Meade Street Railway | 2 | 1 | ..... | 1 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 2 | ..... |
| 2 | Jacksonville Electric | 43 | 41 | 27 | 14 | ..... | ..... | ..... | 2 | ..... | ..... | 37 | 6 | 41 |
| 3 | Key West Electric | 8 | 7 | ..... | 7 | ..... | ..... | ..... | 1 | ..... | ..... | 8 | ..... | 7 |
| 4 | Palatka and Heights Street Railway | 2 | 2 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... |
| 5 | Pensacola Electric Terminal | 23 | 23 | 10 | 12 | ..... | 1 | ..... | ..... | ..... | ..... | 14 | 9 | 12 |
| 6 | Tampa Electric | 33 | 27 | 12 | 15 | ..... | ..... | 5 | 1 | ..... | ..... | 26 | 7 | 27 |
| | GEORGIA. | | | | | | | | | | | | | |
| | Total for state | 497 | 454 | 228 | 223 | 3 | ..... | 17 | 25 | ..... | 1 | 408 | 89 | 67 |
| 1 | Athens Electric Railway | 12 | 9 | 6 | 3 | ..... | ..... | 1 | 2 | ..... | ..... | 10 | 2 | ..... |
| 2 | Georgia Railway and Electric | 183 | 175 | 100 | 75 | ..... | ..... | ..... | 8 | ..... | ..... | 181 | 2 | 67 |
| 3 | Augusta Railway and Electric | 75 | 67 | 34 | 33 | ..... | ..... | ..... | 7 | ..... | 1 | 44 | 31 | ..... |
| 4 | Columbus Railroad | 29 | 28 | 7 | 18 | 3 | ..... | ..... | 1 | ..... | ..... | 21 | 8 | ..... |
| 5 | Covington and Oxford | 7 | 4 | 3 | 1 | ..... | ..... | 3 | ..... | ..... | ..... | ..... | 7 | ..... |
| 6 | Macon Railway and Light | 51 | 48 | 24 | 24 | ..... | ..... | ..... | 3 | ..... | ..... | 41 | 10 | ..... |
| 7 | City Electric Railway | 11 | 10 | 5 | 5 | ..... | ..... | ..... | 1 | ..... | ..... | 9 | 2 | ..... |
| 8 | Savannah Electric | 118 | 105 | 45 | 60 | ..... | ..... | 10 | 3 | ..... | ..... | 95 | 23 | ..... |
| 9 | Valdosta Street Railway | 7 | 6 | 2 | 4 | ..... | ..... | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| 10 | Washington Street Railway | 4 | 2 | 2 | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | 4 | ..... |
| | IDAHO. | | | | | | | | | | | | | |
| | Total for state | 3 | 3 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 3 |
| 1 | Boise Rapid Transit | 3 | 3 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 3 |
| | ILLINOIS. | | | | | | | | | | | | | |
| | Total for state | 7,778 | 7,021 | 3,815 | 3,112 | 76 | 18 | 251 | 269 | 151 | 86 | 3,315 | 4,463 | 3,214 |
| 1 | Alton Railway, Gas and Electric | 21 | 15 | 15 | ..... | ..... | ..... | ..... | 6 | ..... | ..... | 18 | 3 | 7 |
| 2 | Elgin, Aurora and Southern | 76 | 64 | 44 | 20 | ..... | ..... | ..... | 9 | 2 | 1 | 72 | 4 | ..... |
| 3 | Bloomington and Normal | 34 | 32 | 15 | 13 | 4 | ..... | ..... | 1 | ..... | 1 | 31 | 3 | ..... |

[1] Cars furnished and operated by another company.

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | | | | Lamps for buildings, shops, car houses, etc. | | | |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | Stations. | Car houses. | Horses. | Arc. | Incandescent. | Miles of exclusive telephone lines. | Number. |
| 1,364 | 188 | 21 | 574 | 500 | 74 | 1,348 | 1,348 | ..... | 34 | 55 | 43 | 86 | 6,195 | 47 | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 360 | 49 | ..... | 150 | 117 | 33 | 360 | 360 | ..... | 4 | 15 | 13 | 15 | 2,000 | ..... | 2 |
| 18 | ..... | ..... | 6 | 6 | ..... | 16 | 16 | ..... | 1 | 3 | 1 | ..... | 50 | ..... | 3 |
| 37 | 16 | ..... | 13 | 10 | 3 | 37 | 37 | ..... | 1 | 2 | 2 | ..... | 45 | ..... | 4 |
| 13 | ..... | ..... | 3 | 3 | ..... | 13 | 13 | ..... | ..... | 1 | ..... | ..... | 65 | ..... | 5 |
| 30 | 16 | ..... | 13 | 13 | ..... | 30 | 30 | ..... | ..... | 2 | ..... | ..... | 265 | 13 | 6 |
| 22 | 3 | ..... | 6 | 6 | ..... | 25 | 25 | ..... | ..... | 2 | ..... | ..... | 75 | ..... | 7 |
| 262 | 49 | 1 | 126 | 117 | 9 | 262 | 262 | ..... | ..... | 5 | 11 | ..... | 1,900 | ..... | 8 |
| 39 | 1 | ..... | 13 | 13 | ..... | 35 | 35 | ..... | 7 | 1 | ..... | ..... | 50 | 17 | 9 |
| 31 | 31 | ..... | 13 | 13 | ..... | 31 | 31 | ..... | 8 | 1 | ..... | ..... | ..... | ..... | 10 |
| 24 | 5 | ..... | 6 | 6 | ..... | 24 | 24 | ..... | ..... | 2 | ..... | ..... | 100 | ..... | 11 |
| 51 | ..... | ..... | 22 | ..... | 22 | 51 | 51 | ..... | 1 | 3 | 3 | 25 | 400 | ..... | 12 |
| 24 | ..... | 2 | 14 | 7 | 7 | 21 | 21 | ..... | 1 | 3 | 1 | 5 | 100 | ..... | 13 |
| 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 14 |
| 301 | ..... | ..... | 130 | 130 | ..... | 301 | 301 | ..... | ..... | 6 | 6 | 24 | 875 | ..... | 15 |
| 27 | ..... | ..... | 7 | 7 | ..... | 25 | 25 | ..... | 2 | 1 | 1 | 1 | 25 | 1 | 16 |
| 14 | 14 | ..... | 6 | 6 | ..... | 14 | 14 | ..... | ..... | 1 | ..... | 5 | 20 | ..... | 17 |
| 37 | ..... | 8 | 19 | 19 | ..... | 37 | 37 | ..... | 1 | 2 | 3 | 1 | 30 | ..... | 18 |
| 20 | ..... | 6 | 6 | 6 | ..... | 20 | 20 | ..... | 3 | 1 | ..... | ..... | 85 | 16 | 19 |
| 24 | ..... | 4 | 10 | 10 | ..... | 23 | 23 | ..... | ..... | 2 | 2 | ..... | 30 | ..... | 20 |
| 4 | 4 | ..... | 4 | 4 | ..... | 4 | 4 | ..... | 5 | 1 | ..... | ..... | ..... | ..... | 21 |
| 4 | ..... | ..... | 2 | 2 | ..... | 4 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 22 |
| 20 | ..... | ..... | 5 | 5 | ..... | 15 | 15 | ..... | ..... | 1 | ..... | 10 | 80 | ..... | 23 |
| 163 | 10 | ..... | 83 | 83 | ..... | 160 | 160 | ..... | 4 | 5 | 5 | 8 | 362 | 26 | |
| 15 | ..... | ..... | 6 | 6 | ..... | 13 | 13 | ..... | 3 | 1 | 1 | 4 | 62 | ..... | 1 |
| 53 | ..... | ..... | 31 | 31 | ..... | 53 | 53 | ..... | ..... | 2 | ..... | ..... | 150 | 26 | 2 |
| 95 | 10 | ..... | 46 | 46 | ..... | 94 | 94 | ..... | 1 | 2 | 4 | 4 | 150 | ..... | 3 |
| 1,010 | ..... | ..... | 342 | 341 | 1 | 994 | 984 | 10 | 20 | 16 | 30 | 146 | 3,501 | ..... | |
| 48 | ..... | ..... | 41 | 41 | ..... | 44 | 44 | ..... | ..... | 2 | 2 | 9 | 125 | ..... | 1 |
| 7 | ..... | ..... | 2 | 2 | ..... | 5 | 5 | ..... | 2 | 1 | 1 | 95 | ..... | ..... | 2 |
| 459 | ..... | ..... | 121 | 120 | 1 | 463 | 453 | 10 | 1 | 6 | 10 | 21 | 1,000 | ..... | 3 |
| 57 | ..... | ..... | 49 | 49 | ..... | 54 | 54 | ..... | 7 | 2 | 2 | 16 | 315 | ..... | 4 |
| 54 | ..... | ..... | 22 | 22 | ..... | 52 | 52 | ..... | 2 | 1 | 2 | ..... | 310 | ..... | 5 |
| 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 61 | ..... | 6 |
| 360 | ..... | ..... | 102 | 102 | ..... | 354 | 354 | ..... | 1 | 2 | 13 | 5 | 1,478 | ..... | 7 |
| 23 | ..... | ..... | 5 | 5 | ..... | 22 | 22 | ..... | 7 | 1 | ..... | ..... | 212 | ..... | 8 |
| 105 | 3 | 1 | 1 | ..... | 1 | 101 | 89 | 12 | 10 | 6 | 10 | 14 | 1,233 | ..... | |
| 2 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 | ..... | ..... | 2 | ..... | ..... | ..... | 1 |
| 41 | ..... | ..... | ..... | ..... | ..... | 41 | 41 | ..... | 3 | 1 | 2 | 12 | 203 | ..... | 2 |
| 8 | ..... | ..... | ..... | ..... | ..... | 7 | 7 | ..... | 1 | 1 | 2 | 2 | 280 | ..... | 3 |
| 2 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | ..... | 1 | 3 | ..... | ..... | ..... | 4 |
| 23 | ..... | ..... | 1 | ..... | 1 | 21 | 12 | 9 | 3 | 2 | ..... | ..... | 50 | ..... | 5 |
| 29 | 3 | 1 | ..... | ..... | ..... | 29 | 29 | ..... | 3 | 1 | 1 | ..... | 700 | ..... | 6 |
| 495 | 23 | ..... | 111 | 111 | ..... | 476 | 470 | 6 | 29 | 16 | 45 | 178 | 3,079 | 4 | |
| 12 | ..... | ..... | 6 | 6 | ..... | 9 | 9 | ..... | ..... | 1 | 3 | ..... | 125 | ..... | 1 |
| 188 | 23 | ..... | 100 | 100 | ..... | 175 | 175 | ..... | ..... | 8 | 12 | 90 | 1,100 | ..... | 2 |
| 75 | ..... | ..... | ..... | ..... | ..... | 75 | 75 | ..... | 2 | 2 | 4 | 45 | 500 | 1 | 3 |
| 29 | ..... | ..... | ..... | ..... | ..... | 28 | 28 | ..... | 7 | 1 | 2 | 16 | 700 | ..... | 4 |
| 7 | ..... | ..... | ..... | ..... | ..... | 4 | ..... | 4 | 3 | 2 | 3 | ..... | ..... | ..... | 5 |
| 51 | ..... | ..... | 5 | 5 | ..... | 49 | 49 | ..... | ..... | 2 | 4 | 15 | 320 | 3 | 6 |
| 9 | ..... | ..... | ..... | ..... | ..... | 10 | 10 | ..... | 5 | 1 | ..... | 7 | 130 | ..... | 7 |
| 118 | ..... | ..... | ..... | ..... | ..... | 118 | 118 | ..... | 12 | 2 | 6 | 5 | 200 | ..... | 8 |
| 7 | ..... | ..... | ..... | ..... | ..... | 6 | 6 | ..... | ..... | 1 | ..... | ..... | 4 | ..... | 9 |
| 4 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | ..... | 1 | 6 | ..... | ..... | ..... | 10 |
| 3 | ..... | ..... | 3 | 3 | ..... | 3 | 3 | ..... | ..... | 1 | ..... | ..... | 7 | ..... | |
| 3 | ..... | ..... | 3 | 3 | ..... | 3 | 3 | ..... | ..... | 1 | ..... | ..... | 7 | ..... | 1 |
| 5,790 | 1,529 | 1,485 | 3,841 | 1,918 | 1,923 | 7,216 | 4,601 | 2,615 | 212 | 96 | 536 | 369 | 22,388 | 311 | |
| 21 | ..... | ..... | 18 | 18 | ..... | 18 | 18 | ..... | ..... | 1 | 1 | 8 | 75 | ..... | 1 |
| 72 | 7 | ..... | 44 | 44 | ..... | 72 | 72 | ..... | 5 | 2 | ..... | 10 | 400 | 40 | 2 |
| 34 | ..... | ..... | 20 | 20 | ..... | 31 | 31 | ..... | ..... | 2 | 2 | 20 | 100 | ..... | 3 |

[3] Passenger cars furnished by another company.

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY | NUMBER OF CARS. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. | With fenders. |
| | | | | | | Closed and open. | Passenger and express. | | | | | | | |
| | ILLINOIS—Continued. | | | | | | | | | | | | | |
| 4 | Mechanicsburg and Buffalo | 3 | 2 | 1 | | | 1 | 1 | | | | | 3 | |
| 5 | Cairo Electric Railway | 18 | 13 | 7 | 6 | | | | 3 | 2 | | 11 | 7 | 11 |
| 6 | Egypt Electric | 8 | 7 | 4 | 3 | | | | 1 | | | 5 | 3 | 4 |
| 7 | Centralia and Central City | 10 | 10 | 4 | 6 | | | | | | | | 10 | |
| 8 | Urbana and Champaign | 31 | 27 | 20 | 7 | | | | 4 | | | 17 | 14 | 17 |
| 9 | Chicago City Railway | 1,953 | 1,807 | 862 | 945 | | | 8 | 68 | 54 | 16 | 637 | 1,316 | 872 |
| 10 | Chicago Union Traction | 2,865 | 2,676 | 1,199 | 1,447 | 30 | | 16 | 73 | 56 | 44 | 1,033 | 1,832 | 1,297 |
| 11 | Chicago Consolidated Traction | 370 | 337 | 166 | 171 | | | | 12 | 10 | 11 | 282 | 88 | 266 |
| 12 | Calumet Electric Street Railway | 239 | 217 | 52 | 156 | 9 | | | 16 | 4 | 2 | 135 | 104 | 130 |
| 13 | Chicago Electric Traction | 51 | 45 | 20 | 25 | | | | 3 | 2 | 1 | 51 | | 46 |
| 14 | Chicago General Railway | 34 | 29 | 29 | | | | | 3 | 1 | 1 | 21 | 13 | 20 |
| 15 | Chicago General Electric Railway | 1 | 1 | 1 | | | | | | | | 1 | | |
| 16 | Suburban Railroad | 39 | 37 | 37 | | | | | 1 | | 1 | 16 | 23 | 39 |
| 17 | Northwestern Elevated Railroad | 203 | 202 | 202 | | | | | 1 | | | 52 | 151 | |
| 18 | South Side Elevated Railroad | 212 | 210 | 210 | | | | | 2 | | | 180 | 32 | |
| 19 | Metropolitan West Side Elevated | 361 | 351 | 351 | | | | 9 | 1 | | | 90 | 271 | |
| 20 | South Chicago City Railway | 110 | 104 | 48 | 56 | | | | 2 | 1 | 3 | 63 | 47 | 59 |
| 21 | Chicago and Milwaukee | 61 | 54 | 15 | 15 | 15 | 9 | 1 | 4 | 1 | 1 | 28 | 33 | 25 |
| 22 | Lake Street Elevated Railroad | 141 | 139 | 139 | | | | | 2 | | | 37 | 104 | |
| 23 | Chicago and Joliet | 64 | 56 | 32 | 16 | 4 | 4 | 2 | 3 | 2 | 1 | 45 | 19 | |
| 24 | Northern Electric Railway | 4 | 3 | 3 | | | | | 1 | | | 3 | 1 | 3 |
| 25 | Danville Railway and Light | 32 | 29 | 19 | 10 | | | | 3 | | | 27 | 5 | |
| 26 | Danville, Paxton and Northern | 7 | 6 | 6 | | | | | 1 | | | 6 | 1 | |
| 27 | Decatur Traction and Electric | 32 | 30 | 18 | 12 | | | | 1 | | 1 | 23 | 9 | |
| 28 | East St. Louis Railway | 37 | 34 | 34 | | | | | 2 | 1 | | 37 | | 37 |
| 29 | St. Louis and Belleville | [1]213 | | | | | | 209 | 4 | | | | 213 | |
| 30 | East St. Louis and Suburban | 24 | 17 | 13 | 2 | | 2 | 2 | 5 | | | 22 | 2 | 22 |
| 31 | St. Louis and East St. Louis | 8 | 8 | 8 | | | | | | | | 8 | | 8 |
| 32 | Granite City and St. Louis | 20 | 15 | 10 | 5 | | | | 4 | 1 | | 14 | 6 | 10 |
| 33 | Freeport Electric | 21 | 11 | 6 | 5 | | | | 8 | 1 | 1 | 10 | 11 | |
| 34 | Galesburg Electric Motor | 29 | 27 | 13 | 14 | | | | 1 | 1 | | 18 | 11 | 17 |
| 35 | Chicago, Harvard and Geneva Lake | 12 | 8 | 4 | 3 | | 1 | 2 | 1 | 1 | | 7 | 5 | 6 |
| 36 | Jacksonville Railway | 21 | 18 | 10 | 8 | | | | 3 | | | 9 | 12 | |
| 37 | Kankakee Electric Railway | 5 | 5 | 4 | 1 | | | | | | | 5 | | |
| 38 | North Kankakee Light and Railway | 10 | 7 | 5 | 2 | | | | 2 | 1 | | 4 | 6 | |
| 39 | Lincoln Street Car | 3 | 3 | 3 | | | | | | | | 3 | | 1 |
| 40 | Coal Belt Electric Railway | 11 | 8 | 6 | 1 | | 1 | 1 | 2 | | | 8 | 3 | |
| 41 | Murphysboro Street Railway | 2 | 2 | 1 | 1 | | | | | | | | 2 | |
| 42 | Ottawa Railway, Light and Power | 16 | 16 | 9 | 7 | | | | | | | 12 | 4 | |
| 43 | Peoria and Prospect Heights | 25 | 24 | 12 | 12 | | | | | 1 | | 24 | 1 | 24 |
| 44 | Central Railway | 160 | 150 | 76 | 74 | | | | 3 | 7 | | 107 | 53 | 150 |
| 45 | Peoria and Pekin Terminal | 10 | 10 | | | 10 | | | | | | 10 | | 10 |
| 46 | Quincy Horse Railway | 47 | 42 | 18 | 24 | | | | 4 | 1 | | 24 | 23 | 34 |
| 47 | Rockford Railway, Light and Power | 47 | 44 | 20 | 24 | | | | 2 | | 1 | 39 | 8 | 47 |
| 48 | Rockford and Belvidere | 7 | 6 | 6 | | | | | | 1 | | 7 | | |
| 49 | Springfield Consolidated | 54 | 52 | 32 | 16 | 4 | | | 2 | | | 52 | 2 | 52 |
| 50 | Peoples Light and Railway | 16 | 11 | 6 | 5 | | | | 5 | | | 11 | 5 | |
| | INDIANA. | | | | | | | | | | | | | |
| | Total for state | 1,146 | 998 | 515 | 467 | 4 | 12 | 8 | 114 | 11 | 15 | 818 | 328 | [2] 645 |
| 1 | Brownstown and Ewing | 1 | 1 | 1 | | | | | | | | | 1 | |
| 2 | John S. Crump | 8 | 7 | 7 | | | | | 1 | | | 4 | 4 | |
| 3 | Evansville Electric Railway | 92 | 87 | 40 | 47 | | | | 4 | | 1 | 65 | 27 | 64 |
| 4 | Fort Wayne Traction | 82 | 76 | 26 | 50 | | | | 2 | | 4 | 43 | 39 | 76 |
| 5 | Fort Wayne and Southwestern | 8 | 7 | 7 | | | | | 1 | | | 8 | | 7 |
| 6 | Hammond, Whiting and East Chicago | 12 | 11 | 11 | | | | | | | 1 | 12 | | 11 |
| 7 | Indianapolis Street Railway | 317 | 298 | 142 | 156 | | | | 14 | | 5 | 303 | 14 | 298 |
| 8 | Broad Ripple Traction | ([3]) | | | | | | | | | | | | |
| 9 | Indianapolis, Shelbyville and Southeastern | 8 | 7 | 7 | | | | | 1 | | | 7 | 1 | 7 |
| 10 | Indianapolis and Eastern | 11 | 9 | 7 | | | 2 | 1 | 1 | | | 10 | 1 | 10 |
| 11 | Union Traction | 242 | 172 | 110 | 62 | | | 4 | 64 | 2 | | 135 | 107 | 50 |
| 12 | Indianapolis, Greenwood and Franklin | 9 | 8 | 6 | | | 2 | | 1 | | | 9 | | 8 |
| 13 | Jeffersonville City Railway | 11 | 11 | 9 | 2 | | | | | | | | 11 | |
| 14 | Kokomo Railway and Light | 17 | 16 | 7 | 9 | | | | 1 | | | 9 | 8 | |
| 15 | Lafayette Street Railway | 35 | 31 | 14 | 17 | | | | 2 | 2 | | 22 | 13 | |
| 16 | Logansport Railway | 15 | 14 | 8 | 6 | | | | 1 | | | 13 | 2 | |
| 17 | Logansport, Rochester and Northern | 16 | 16 | 6 | 10 | | | | | | | 6 | 10 | |
| 18 | Madison Light and Railway | 4 | 4 | 4 | | | | | | | | 4 | | |
| 19 | Lake Cities | 4 | 3 | 2 | 1 | | | | | 1 | | 3 | 1 | |
| 20 | Highland Railroad | 6 | 6 | 1 | 5 | | | | | | | 3 | 3 | |
| 21 | New Albany Street Railroad | 21 | 20 | 13 | 7 | | | | | | 1 | 17 | 4 | 4 |
| 22 | Richmond Street and Interurban | 44 | 36 | 16 | 16 | 4 | | 1 | 6 | 1 | | 21 | 23 | 12 |
| 23 | Indiana Railway | 72 | 63 | 32 | 31 | | | 1 | 4 | 2 | 2 | 45 | 27 | 64 |
| 24 | Terre Haute Electric | 73 | 60 | 23 | 29 | | 8 | 1 | 9 | 2 | 1 | 53 | 20 | 25 |
| 25 | Vincennes Citizens | 14 | 14 | 5 | 9 | | | | | | | 9 | 5 | |
| 26 | Wabash River Traction | 16 | 13 | 7 | 6 | | | | 2 | 1 | | 10 | 6 | 9 |
| 27 | Washington Street Railway | 8 | 8 | 4 | 4 | | | | | | | 7 | 1 | |
| | IOWA. | | | | | | | | | | | | | |
| | Total for state | 858 | 675 | 391 | 281 | | 3 | 41 | 115 | 16 | 11 | 535 | 323 | 477 |
| 1 | Boone Electric | 10 | 7 | 5 | 2 | | | | 2 | 1 | | 5 | 5 | 3 |
| 2 | Burlington Railway and Light | 58 | 50 | 16 | 34 | | | | 7 | 1 | | 27 | 31 | 23 |
| 3 | Cedar Rapids and Marion City | 29 | 23 | 22 | | | 1 | | 4 | 2 | | 25 | 4 | 22 |
| 4 | Peoples Street Railway | 3 | 3 | 3 | | | | | | | | | 3 | |
| 5 | State Electric | 28 | 25 | 12 | 13 | | | | 2 | 1 | | 16 | 12 | |
| 6 | Omaha and Council Bluffs | 78 | 71 | 41 | 30 | | | 1 | 3 | | 3 | 55 | 23 | 52 |

[1] Exclusive of 2 electric locomotives.

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | | | | Lamps for buildings, shops, car houses, etc. | | | |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | Stations. | Car houses. | Horses. | Arc. | Incandescent. | Miles of exclusive telephone lines. | Number. |
| 8 | | | 2 | | 2 | 2 | | 2 | | 1 | 3 | | | | 4 |
| 18 | | | 7 | | 7 | 13 | 13 | | | | | | | | 5 |
| 8 | | | 4 | | 4 | 7 | 7 | | | 1 | | | 20 | | 6 |
| 10 | | | 4 | | 4 | 10 | | 10 | | 1 | 10 | | | | 7 |
| 31 | | | 20 | 12 | 8 | 31 | 31 | | | 2 | 2 | 2 | 100 | | 8 |
| 612 | 60 | 1,281 | 862 | 60 | 802 | 1,907 | 1,019 | 788 | | 7 | 188 | 70 | 2,700 | 30 | 9 |
| 2,451 | 210 | 204 | 1,207 | 483 | 724 | 2,807 | 1,020 | 1,787 | | 15 | 275 | 100 | 1,500 | | 10 |
| 370 | | | 166 | 158 | 8 | 337 | 337 | | | 4 | 3 | 20 | 750 | | 11 |
| 239 | 9 | | 61 | | 61 | 226 | 226 | | 2 | 5 | 5 | | 570 | 62 | 12 |
| 51 | | | 21 | 1 | 20 | 51 | 51 | | | 1 | | | 300 | | 13 |
| 31 | | | 20 | | 20 | 30 | 30 | | | | 5 | | 200 | | 14 |
| 1 | | | 1 | | 1 | 1 | | 1 | | 1 | | | | | 15 |
| 39 | 16 | | 9 | | 9 | 37 | 37 | | | 1 | | | 400 | 8 | 16 |
| 208 | 203 | | 202 | 202 | | 202 | 202 | | 31 | 1 | | 24 | 1,200 | 8 | 17 |
| | 212 | | 210 | 210 | | 210 | 210 | | 23 | 1 | | | 1,500 | 8 | 18 |
| 361 | 361 | | 351 | 351 | | 351 | 351 | | 58 | 3 | | | 6,000 | 16 | 19 |
| 110 | 3 | | 48 | 48 | | 108 | 108 | | 1 | 2 | 2 | | 495 | 11 | 20 |
| 61 | 30 | | 17 | 16 | 1 | 57 | 32 | 25 | 5 | 3 | | 25 | 500 | 30 | 21 |
| 141 | 141 | | 139 | 139 | | 139 | 139 | | 54 | 1 | | 12 | 1,285 | 10 | 22 |
| 64 | 16 | | 45 | 45 | | 61 | 61 | | | 4 | 3 | 20 | 300 | 31 | 23 |
| 3 | | | 3 | | 3 | 3 | 3 | | | | | | 50 | | 24 |
| 32 | | | 17 | | 17 | 29 | 29 | | 2 | 2 | 3 | 10 | 200 | | 25 |
| 6 | 6 | | 6 | 6 | | 6 | 6 | | 2 | 1 | | | 10 | 12 | 26 |
| 32 | | | 18 | 18 | | 32 | 32 | | 2 | 2 | | 10 | 110 | 2 | 27 |
| 37 | | | 34 | | 34 | 35 | 35 | | | 1 | 2 | 2 | 78 | | 28 |
| 213 | 213 | | | | | | | | | | | | | | 29 |
| 24 | 19 | | 19 | 19 | | 24 | 24 | | | 2 | | | 216 | 18 | 30 |
| 8 | | | 8 | 8 | | 8 | 8 | | | 1 | | | 16 | | 31 |
| 14 | | | 12 | 10 | 2 | 14 | 14 | | 3 | 1 | 1 | 10 | 100 | 2 | 32 |
| 21 | | | 6 | 6 | | 11 | 11 | | | 1 | | | 100 | | 33 |
| 29 | | | 13 | 1 | 12 | 29 | 29 | | 3 | 1 | 3 | | 60 | | 34 |
| 12 | 7 | | 8 | 1 | 7 | 11 | 11 | | 2 | 1 | | 5 | 15 | 11 | 35 |
| 21 | | | 9 | | 9 | 18 | 18 | | | 1 | 2 | | 50 | | 36 |
| 5 | | | 5 | | 5 | 5 | 5 | | | 1 | | | 18 | | 37 |
| 7 | | | 5 | 3 | 2 | 7 | 7 | | 1 | 1 | | | 15 | | 38 |
| 3 | | | 3 | | 3 | 3 | 3 | | 1 | 1 | | | 19 | | 39 |
| 11 | | | 7 | 7 | | 8 | 8 | | 2 | | | 10 | 25 | 14 | 40 |
| 2 | | | 1 | | 1 | 2 | | 2 | | 1 | 4 | | | | 41 |
| 16 | | | 9 | 2 | 7 | 16 | 16 | | | 1 | | | 100 | | 42 |
| 24 | | | 12 | | 12 | 24 | 24 | | | | | | 240 | | 43 |
| 160 | | | 76 | | 76 | 150 | 150 | | 1 | 10 | 4 | 10 | 2,076 | | 44 |
| 10 | 10 | | 10 | 10 | | 10 | 10 | | 10 | 1 | | | 100 | | 45 |
| 47 | | | 18 | 18 | | 47 | 47 | | | 1 | 2 | 1 | 100 | 3 | 46 |
| 47 | | | 20 | | 20 | 47 | 47 | | 1 | 3 | 5 | | 50 | | 47 |
| 7 | 6 | | 6 | 2 | 4 | 6 | 6 | | 2 | | 1 | | | | 48 |
| 52 | | | 32 | | 32 | 52 | 52 | | | 2 | 9 | | 200 | | 49 |
| 16 | | | 6 | | 6 | 11 | 11 | | 1 | 1 | 1 | | 45 | | 50 |
| 1,121 | 125 | | 524 | 286 | 238 | 1,015 | 999 | 16 | 40 | 50 | 62 | 95 | 5,843 | 372 | |
| 1 | | | 1 | | 1 | 1 | | 1 | | | 3 | | | | 1 |
| 8 | | | 4 | 4 | | 8 | 4 | 4 | | 1 | | 2 | 40 | | 2 |
| 91 | | | 37 | 37 | | 87 | 87 | | | 3 | 4 | | 250 | | 3 |
| 82 | | | 26 | 26 | | 76 | 76 | | | 7 | 6 | 18 | 190 | | 4 |
| 8 | 8 | | 5 | | 5 | 8 | 8 | | 2 | 1 | | | 200 | 26 | 5 |
| 12 | | | 11 | 11 | | 11 | 11 | | | 1 | | | 80 | 6 | 6 |
| 317 | 35 | | 142 | | 142 | 303 | 303 | | | 4 | 16 | 20 | 2,500 | | 7 |
| | | | | | | | | | 1 | 1 | 1 | | 50 | | 8 |
| 7 | 7 | | 7 | | 7 | 7 | 7 | | 1 | 1 | | | 102 | 27 | 9 |
| 10 | 10 | | 10 | 10 | | 10 | 10 | | 3 | 1 | | | 100 | 17 | 10 |
| 228 | 44 | | 121 | 82 | 39 | 187 | 187 | | 12 | 5 | 4 | 30 | 1,000 | 222 | 11 |
| 9 | 8 | | 8 | 8 | | 9 | 9 | | 4 | 1 | | 1 | 50 | 18 | 12 |
| 11 | | | | | | 11 | | 11 | | 1 | 20 | | | | 13 |
| 17 | | | 7 | | 7 | 17 | 17 | | | 1 | | 2 | 40 | | 14 |
| 35 | | | 14 | 14 | | 31 | 31 | | | 2 | 2 | | 75 | 5 | 15 |
| 15 | | | 8 | 6 | 2 | 15 | 15 | | 1 | 1 | | | 50 | | 16 |
| 16 | | | 6 | 6 | | 16 | 16 | | | 2 | | | 10 | | 17 |
| 4 | | | 4 | 4 | | 4 | 4 | | | 1 | | | 40 | | 18 |
| 4 | | | 2 | | 2 | 3 | 3 | | | 1 | | | 31 | | 19 |
| 6 | | | 1 | | 1 | 6 | 6 | | | 1 | | | 40 | | 20 |
| 21 | | | 13 | | 13 | 21 | 21 | | 1 | 1 | 1 | | 30 | | 21 |
| 44 | 4 | | 16 | 12 | 4 | 16 | 16 | | 7 | 3 | | | 125 | 20 | 22 |
| 64 | | | 33 | 32 | 1 | 68 | 68 | | 6 | 5 | | 2 | 300 | | 23 |
| 73 | 9 | | 32 | 24 | 8 | 64 | 64 | | | 2 | 5 | 20 | 250 | 16 | 24 |
| 14 | | | 5 | | 5 | 14 | 14 | | | 1 | | | 50 | | 25 |
| 16 | | | 7 | 6 | 1 | 14 | 14 | | 1 | 1 | | | 285 | 15 | 26 |
| 8 | | | 4 | 4 | | 8 | 8 | | | 1 | | | 5 | | 27 |
| 800 | 24 | 14 | 387 | 140 | 247 | 709 | 705 | 4 | 21 | 38 | 43 | 65 | 3,552 | 69 | |
| 10 | | 10 | 5 | 4 | 1 | 7 | 7 | | | 2 | | 4 | 100 | | 1 |
| 50 | | | 16 | 12 | 4 | 50 | 50 | | | 1 | 2 | | 92 | | 2 |
| 29 | | | 23 | | 23 | 26 | 26 | | 1 | 3 | 2 | | 50 | 6 | 3 |
| 3 | | | 2 | | 2 | 2 | | 2 | | 1 | 12 | | | | 4 |
| 28 | | | 9 | | 9 | 25 | 25 | | | 3 | 1 | | 60 | | 5 |
| 68 | 6 | | 37 | 34 | 3 | 75 | 75 | | | 3 | | 13 | 332 | 2 | 6 |

[1] Cars rented.

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | | With fenders. |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. | |
| | | | | | | Closed and open. | Passenger and express. | | | | | | | |
| | IOWA—Continued. | | | | | | | | | | | | | |
| 7 | Tri-City Railway | 168 | 156 | 88 | 68 | ..... | ..... | ..... | 4 | 4 | 4 | 117 | 51 | 156 |
| 8 | Des Moines City Railway | 134 | 81 | 70 | 11 | ..... | ..... | ..... | 49 | 4 | ..... | 87 | 47 | 80 |
| 9 | Interurban Railway | 18 | 4 | 4 | ..... | ..... | ..... | ..... | 14 | ..... | ..... | 6 | 12 | 6 |
| 10 | Union Electric | 44 | 42 | 19 | 23 | ..... | ..... | ..... | 1 | ..... | 1 | 28 | 16 | 30 |
| 11 | Fort Dodge Light and Power | 1 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 |
| 12 | Fort Madison Street Railway | 12 | 11 | 4 | 7 | ..... | ..... | ..... | ..... | 1 | ..... | 7 | 5 | ..... |
| 13 | Independence and Rush Park | 6 | 4 | 2 | 2 | ..... | ..... | ..... | 2 | ..... | ..... | 2 | 4 | ..... |
| 14 | Keokuk Railway and Power | 24 | 24 | 12 | 12 | ..... | ..... | ..... | ..... | ..... | ..... | 13 | 11 | ..... |
| 15 | Marshalltown Light, Power and Railway | 8 | 8 | 5 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 2 | 6 |
| 16 | Mason City and Clear Lake | 16 | 12 | 5 | 6 | ..... | 1 | 4 | ..... | ..... | ..... | 7 | 9 | ..... |
| 17 | Citizens Railway and Light | 30 | 26 | 10 | 16 | ..... | ..... | ..... | 3 | 1 | ..... | 21 | 9 | 26 |
| 18 | Ottumwa Traction and Light | 35 | 32 | 13 | 19 | ..... | ..... | ..... | 2 | ..... | 1 | 33 | 2 | 32 |
| 19 | Red Oak Street Railway | 2 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... |
| 20 | Sioux City Traction | 72 | 65 | 43 | 22 | ..... | ..... | ..... | 4 | 1 | 2 | 56 | 16 | 30 |
| 21 | Tama and Toledo | 11 | 3 | 2 | 1 | ..... | ..... | ..... | 8 | ..... | ..... | 3 | 8 | 3 |
| 22 | Waterloo and Cedar Falls | [1]71 | 25 | 12 | 12 | ..... | 1 | 36 | 10 | ..... | ..... | 20 | 51 | 7 |
| | KANSAS. | | | | | | | | | | | | | |
| | Total for state | 232 | 207 | 141 | 66 | ..... | ..... | 10 | 7 | 8 | ..... | 147 | 85 | 48 |
| 1 | Arkansas City Street Railway | 5 | 5 | 3 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 | ..... |
| 2 | Atchison Railway, Light and Power | 19 | 16 | 7 | 9 | ..... | ..... | ..... | 3 | ..... | ..... | 9 | 10 | ..... |
| 3 | Fort Scott Consolidated Supply | 12 | 11 | 6 | 5 | ..... | ..... | ..... | 1 | ..... | ..... | 6 | 6 | ..... |
| 4 | Hutchinson Street Railway | 14 | 13 | 7 | 6 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 14 | ..... |
| 5 | Iola Electric Railroad | 6 | 5 | 4 | 1 | ..... | ..... | ..... | 1 | ..... | ..... | 4 | 2 | 4 |
| 6 | Electric Railway and Ice | 7 | 7 | 4 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 4 | 3 | ..... |
| 7 | Kansas City-Leavenworth[2] | 45 | 35 | 30 | 5 | ..... | ..... | 10 | ..... | ..... | ..... | 45 | ..... | ..... |
| 8 | Pittsburg Railroad | 12 | 12 | 8 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | 10 | 2 | ..... |
| 9 | Consolidated Street Railway | 4 | 4 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 | ..... |
| 10 | Topeka Railway | 71 | 62 | 41 | 21 | ..... | ..... | ..... | 2 | 7 | ..... | 44 | 27 | 44 |
| 11 | Wichita Railroad and Light | 31 | 31 | 21 | 10 | ..... | ..... | ..... | ..... | ..... | ..... | 25 | 6 | ..... |
| 12 | Union Street Railway | 6 | 6 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | ..... |
| | KENTUCKY. | | | | | | | | | | | | | |
| | Total for state | 976 | 889 | 617 | 198 | 73 | 1 | 2 | 59 | 17 | 9 | 704 | 272 | 620 |
| 1 | Bowling Green Railway | 8 | 7 | 6 | 1 | ..... | ..... | ..... | 1 | ..... | ..... | 7 | 1 | ..... |
| 2 | Cincinnati, Newport and Covington | 142 | 132 | 30 | 30 | 72 | ..... | ..... | 6 | ..... | 4 | 142 | ..... | 142 |
| 3 | Frankfort and Suburban | 6 | 5 | 5 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 6 | ..... | ..... |
| 4 | Henderson Street Railway | 12 | 11 | 9 | 2 | ..... | ..... | ..... | 1 | ..... | ..... | 9 | 3 | ..... |
| 5 | Lexington Railway | 42 | 39 | 18 | 21 | ..... | ..... | ..... | 2 | 1 | ..... | 29 | 13 | 42 |
| 6 | Georgetown and Lexington | 6 | 5 | 3 | 1 | ..... | 1 | ..... | 1 | ..... | ..... | 6 | ..... | ..... |
| 7 | Louisville Railway | 648 | 606 | 492 | 113 | 1 | ..... | ..... | 22 | 15 | 5 | 425 | 223 | 425 |
| 8 | Louisville, Anchorage and Pewee | 13 | 10 | 10 | ..... | ..... | ..... | 1 | 2 | ..... | ..... | 11 | 2 | 11 |
| 9 | Kentucky and Indiana | 18 | 14 | 14 | ..... | ..... | ..... | ..... | 4 | ..... | ..... | 14 | 4 | ..... |
| 10 | Maysville Street Railroad | 12 | 12 | 5 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | 9 | 3 | ..... |
| 11 | Owensboro City Railroad | 21 | 19 | 6 | 13 | ..... | ..... | ..... | 2 | ..... | ..... | 16 | 5 | ..... |
| 12 | Paducah City Railway | 48 | 29 | 19 | 10 | ..... | ..... | ..... | 18 | 1 | ..... | 30 | 18 | ..... |
| | LOUISIANA. | | | | | | | | | | | | | |
| | Total for state | 670 | 626 | 551 | 69 | 6 | ..... | ..... | 43 | ..... | 1 | 595 | 75 | 579 |
| 1 | Baton Rouge Electric and Gas | 7 | 7 | 3 | 3 | 1 | ..... | ..... | ..... | ..... | ..... | 7 | ..... | ..... |
| 2 | Lake Charles Street Railway | 3 | 3 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 | ..... |
| 3 | St. Charles Street Railroad | 83 | 78 | 78 | ..... | ..... | ..... | ..... | 4 | ..... | 1 | 79 | 4 | 79 |
| 4 | Orleans Railroad | 31 | 30 | 25 | ..... | 5 | ..... | ..... | 1 | ..... | ..... | 31 | ..... | 31 |
| 5 | New Orleans Railways | 365 | 356 | 307 | 49 | ..... | ..... | ..... | 9 | ..... | ..... | 331 | 34 | 331 |
| 6 | New Orleans and Carrollton | 162 | 134 | 122 | 12 | ..... | ..... | ..... | 28 | ..... | ..... | 138 | 24 | 138 |
| 7 | Algiers, McDonoghville and Gretna | 4 | 4 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 | ..... |
| 8 | Shreveport Belt Railway | 15 | 14 | 9 | 5 | ..... | ..... | ..... | 1 | ..... | ..... | 9 | 6 | ..... |
| | MAINE. | | | | | | | | | | | | | |
| | Total for state | 598 | 476 | 199 | 274 | 1 | 2 | 33 | 43 | 46 | ..... | 469 | 129 | 11 |
| 1 | Augusta, Winthrop and Gardiner | 22 | 19 | 8 | 10 | ..... | 1 | ..... | 2 | 1 | ..... | 22 | ..... | ..... |
| 2 | Public Works | 27 | 24 | 11 | 13 | ..... | ..... | ..... | 1 | 2 | ..... | 27 | ..... | ..... |
| 3 | Penobscot Central Railway | 27 | 15 | 13 | 2 | ..... | ..... | 12 | ..... | ..... | ..... | 9 | 18 | ..... |
| 4 | Bangor, Orono and Old Town | 20 | 16 | 8 | 8 | ..... | ..... | ..... | 2 | 2 | ..... | 19 | 1 | ..... |
| 5 | Bangor, Hampden and Winterport | 13 | 9 | 3 | 6 | ..... | ..... | ..... | 3 | 1 | ..... | 13 | ..... | ..... |
| 6 | Biddeford and Saco | 27 | 24 | 5 | 19 | ..... | ..... | ..... | ..... | 3 | ..... | 18 | 9 | ..... |
| 7 | Calais Street Railway | 9 | 7 | 3 | 4 | ..... | ..... | ..... | 1 | 1 | ..... | 9 | ..... | ..... |
| 8 | Benton and Fairfield | 9 | 1 | 1 | ..... | ..... | ..... | 7 | 1 | ..... | ..... | 4 | 5 | ..... |
| 9 | Fryeburg Horse Railway | 6 | 6 | 3 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | ..... |
| 10 | Atlantic Shore Line | 2 | 2 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| 11 | Lewiston, Brunswick and Bath | 87 | 70 | 25 | 45 | ..... | ..... | 2 | 6 | 9 | ..... | 60 | 27 | ..... |
| 12 | Norway and Paris | 4 | 4 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| 13 | Portland Railroad | 238 | 207 | 87 | 120 | ..... | ..... | 1 | 13 | 17 | ..... | 196 | 42 | ..... |
| 14 | Portsmouth, Kittery and York | 21 | 17 | 6 | 11 | ..... | ..... | 1 | 1 | 2 | ..... | 21 | ..... | ..... |
| 15 | Rockland, Thomaston and Camden | 30 | 18 | 8 | 10 | ..... | ..... | 4 | 5 | 3 | ..... | 20 | 10 | ..... |
| 16 | Sanford and Cape Porpoise | 26 | 15 | 7 | 8 | ..... | ..... | 2 | 8 | 1 | ..... | 18 | 8 | ..... |
| 17 | Skowhegan and Norridgewock Railway and Power | 7 | 5 | 2 | 3 | ..... | ..... | 1 | ..... | 1 | ..... | 6 | 1 | 2 |
| 18 | Somerset Traction | 13 | 8 | 2 | 4 | 1 | 1 | 3 | ..... | 2 | ..... | 11 | 2 | 9 |
| 19 | Waterville and Fairfield Railway and Light | 10 | 9 | 4 | 5 | ..... | ..... | ..... | ..... | 1 | ..... | 10 | ..... | ..... |

[1] Exclusive of 2 steam locomotives.

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | | | | Lamps for buildings, shops, car houses, etc. | | | |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | Stations. | Car houses. | Horses. | Arc. | Incandescent. | Miles of exclusive telephone lines. | Number. |
| 156 | 2 | ..... | 88 | 20 | 68 | 168 | 168 | ..... | ..... | 3 | 10 | ..... | 875 | ..... | 7 |
| 134 | ..... | ..... | 70 | 14 | 56 | 91 | 91 | ..... | 1 | 3 | 7 | 18 | 500 | ..... | 8 |
| 6 | 4 | 4 | 6 | 1 | 5 | 6 | 6 | ..... | 3 | ..... | ..... | 4 | 105 | 22 | 9 |
| 42 | ..... | ..... | 19 | 19 | ..... | 43 | 43 | ..... | ..... | 2 | ..... | 6 | ..... | ..... | 10 |
| 1 | ..... | ..... | 1 | ..... | 1 | 1 | 1 | ..... | 1 | 1 | ..... | ..... | 30 | ..... | 11 |
| 11 | ..... | ..... | 4 | ..... | 4 | 11 | 11 | ..... | ..... | 1 | ..... | ..... | 10 | ..... | 12 |
| 4 | ..... | ..... | 2 | 2 | ..... | 4 | 4 | ..... | ..... | 1 | ..... | ..... | 18 | ..... | 13 |
| 24 | ..... | ..... | 8 | ..... | 8 | 24 | 24 | ..... | ..... | 1 | ..... | ..... | 100 | ..... | 14 |
| 8 | ..... | ..... | 5 | ..... | 5 | 8 | 8 | ..... | ..... | 1 | ..... | 2 | 50 | ..... | 15 |
| 16 | 10 | ..... | 8 | 8 | ..... | 14 | 14 | ..... | 3 | 1 | ..... | ..... | 40 | 12 | 16 |
| 27 | ..... | ..... | 10 | ..... | 10 | 26 | 26 | ..... | ..... | 1 | ..... | ..... | 25 | ..... | 17 |
| 35 | ..... | ..... | 13 | 13 | ..... | 33 | 33 | ..... | ..... | 2 | ..... | 2 | 150 | ..... | 18 |
| 2 | ..... | ..... | 2 | ..... | 2 | 2 | ..... | 2 | ..... | ..... | 4 | ..... | ..... | ..... | 19 |
| 72 | ..... | ..... | 43 | ..... | 43 | 65 | 65 | ..... | 7 | 3 | 4 | 15 | 415 | 4 | 20 |
| 3 | ..... | ..... | 2 | 2 | ..... | 3 | 3 | ..... | 1 | 1 | 1 | 1 | 100 | ..... | 21 |
| 71 | 2 | ..... | 14 | 11 | 3 | 25 | 25 | ..... | 4 | 4 | ..... | ..... | 500 | 23 | 22 |
| 227 | ..... | ..... | 99 | 34 | 65 | 166 | 146 | 20 | 7 | 16 | 79 | 34 | 482 | 2 | |
| 5 | ..... | ..... | 3 | ..... | 3 | 3 | ..... | 3 | ..... | 1 | 4 | ..... | ..... | ..... | 1 |
| 16 | ..... | ..... | 7 | 7 | ..... | 16 | 16 | ..... | ..... | 1 | ..... | 7 | 29 | ..... | 2 |
| 12 | ..... | ..... | 4 | ..... | 4 | 12 | 12 | ..... | ..... | 2 | 4 | 2 | 75 | 1 | 3 |
| 13 | ..... | ..... | 7 | ..... | 7 | 7 | ..... | 7 | ..... | 2 | 40 | ..... | ..... | ..... | 4 |
| 5 | ..... | ..... | 4 | ..... | 4 | 4 | 4 | ..... | 2 | 1 | ..... | ..... | 35 | ..... | 5 |
| 7 | ..... | ..... | 4 | 4 | ..... | 7 | 7 | ..... | 1 | 1 | ..... | ..... | 40 | ..... | 6 |
| 45 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| 12 | ..... | ..... | 7 | ..... | 7 | 12 | 12 | ..... | ..... | 2 | 1 | 1 | 53 | ..... | 8 |
| 4 | ..... | ..... | 2 | ..... | 2 | 4 | ..... | 4 | ..... | 1 | 7 | ..... | ..... | ..... | 9 |
| 71 | ..... | ..... | 36 | 2 | 34 | 64 | 64 | ..... | 3 | 2 | 4 | 20 | 200 | 1 | 10 |
| 31 | ..... | ..... | 21 | 21 | ..... | 31 | 31 | ..... | 1 | 2 | 1 | 4 | 50 | ..... | 11 |
| 6 | ..... | ..... | 4 | ..... | 4 | 6 | ..... | 6 | ..... | 1 | 18 | ..... | ..... | ..... | 12 |
| 975 | 15 | 10 | 522 | 503 | 19 | 929 | 895 | 34 | 17 | 26 | 85 | 78 | 3,435 | 14 | |
| 8 | ..... | ..... | ..... | ..... | ..... | 8 | 8 | ..... | 1 | 1 | ..... | ..... | 50 | ..... | 1 |
| 142 | ..... | 10 | 132 | 132 | ..... | 142 | 142 | ..... | 2 | 2 | 4 | 12 | 1,465 | ..... | 2 |
| 6 | ..... | ..... | ..... | ..... | ..... | 6 | 6 | ..... | ..... | 1 | ..... | 5 | 15 | ..... | 3 |
| 11 | ..... | ..... | 6 | 6 | ..... | 11 | 11 | ..... | ..... | 1 | ..... | ..... | 25 | ..... | 4 |
| 42 | ..... | ..... | 18 | 18 | ..... | 39 | 39 | ..... | 1 | 2 | 3 | 2 | 100 | ..... | 5 |
| 6 | 3 | ..... | 4 | 4 | ..... | 6 | 6 | ..... | ..... | 1 | ..... | 3 | 20 | ..... | 6 |
| 648 | ..... | ..... | 330 | 330 | ..... | 616 | 582 | 34 | 2 | 12 | 75 | 50 | 1,000 | ..... | 7 |
| 13 | 11 | ..... | 10 | 5 | 5 | 11 | 11 | ..... | 4 | 2 | ..... | 6 | 300 | 14 | 8 |
| 15 | 1 | ..... | 14 | ..... | 14 | 14 | 14 | ..... | 5 | 1 | ..... | ..... | 85 | ..... | 9 |
| 12 | ..... | ..... | ..... | ..... | ..... | 12 | 12 | ..... | ..... | 1 | ..... | ..... | 25 | ..... | 10 |
| 21 | ..... | ..... | 6 | 6 | ..... | 19 | 19 | ..... | ..... | 1 | 2 | ..... | 100 | ..... | 11 |
| 48 | ..... | ..... | 2 | 2 | ..... | 45 | 45 | ..... | 2 | 1 | 1 | ..... | 250 | ..... | 12 |
| 635 | 10 | ..... | ..... | ..... | ..... | 627 | 620 | 7 | 18 | 14 | 81 | 35 | 757 | 1 | |
| 7 | ..... | ..... | ..... | ..... | ..... | 7 | 7 | ..... | ..... | 1 | 3 | ..... | 75 | 1 | 1 |
| 3 | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 3 | ..... | 1 | 17 | ..... | 2 | ..... | 2 |
| 81 | ..... | ..... | ..... | ..... | ..... | 78 | 78 | ..... | ..... | 1 | 3 | 10 | 100 | ..... | 3 |
| 31 | ..... | ..... | ..... | ..... | ..... | 30 | 30 | ..... | 3 | 1 | 2 | ..... | 30 | ..... | 4 |
| 352 | 10 | ..... | ..... | ..... | ..... | 356 | 356 | ..... | 8 | 6 | 35 | ..... | 150 | ..... | 5 |
| 142 | ..... | ..... | ..... | ..... | ..... | 135 | 135 | ..... | 2 | 2 | 3 | 20 | 250 | ..... | 6 |
| 4 | ..... | ..... | ..... | ..... | ..... | 4 | ..... | 4 | 3 | 1 | 17 | ..... | ..... | ..... | 7 |
| 15 | ..... | ..... | ..... | ..... | ..... | 14 | 14 | ..... | 2 | 1 | 1 | 5 | 150 | ..... | 8 |
| 586 | 33 | ..... | 184 | 184 | ..... | 545 | 539 | 6 | 59 | 38 | 28 | 120 | 2,809 | 166 | |
| 22 | ..... | ..... | 9 | 9 | ..... | 22 | 22 | ..... | 6 | 2 | ..... | ..... | 185 | 2 | 1 |
| 27 | ..... | ..... | 11 | 11 | ..... | 26 | 26 | ..... | 1 | 2 | 2 | 2 | 59 | ..... | 2 |
| 27 | 3 | ..... | 13 | 13 | ..... | 15 | 15 | ..... | 4 | 1 | ..... | ..... | 50 | 26 | 3 |
| 19 | ..... | ..... | 8 | 8 | ..... | 18 | 18 | ..... | 4 | 2 | ..... | ..... | 12 | ..... | 4 |
| 13 | ..... | ..... | 3 | 3 | ..... | 12 | 12 | ..... | 1 | 1 | ..... | 10 | 100 | 5 | 5 |
| 27 | ..... | ..... | 5 | 5 | ..... | 27 | 27 | ..... | 1 | 1 | 1 | ..... | 25 | ..... | 6 |
| 9 | ..... | ..... | 3 | 3 | ..... | 9 | 9 | ..... | ..... | 1 | ..... | ..... | 30 | ..... | 7 |
| 3 | ..... | ..... | 1 | 1 | ..... | 3 | 3 | ..... | 2 | 1 | ..... | ..... | 10 | ..... | 8 |
| 6 | ..... | ..... | ..... | ..... | ..... | 6 | ..... | 6 | 2 | 2 | 1 | ..... | ..... | ..... | 9 |
| 2 | ..... | ..... | 1 | 1 | ..... | 2 | 2 | ..... | 1 | ..... | ..... | ..... | ..... | 2 | 10 |
| 87 | 1 | ..... | 27 | 27 | ..... | 83 | 83 | ..... | 14 | 4 | ..... | ..... | 1,200 | 32 | 11 |
| 4 | ..... | ..... | 2 | 2 | ..... | 4 | 4 | ..... | ..... | 1 | ..... | ..... | 5 | 1 | 12 |
| 238 | 24 | ..... | 69 | 69 | ..... | 223 | 223 | ..... | 2 | 10 | 23 | 100 | 600 | 18 | 13 |
| 21 | ..... | ..... | 7 | 7 | ..... | 21 | 21 | ..... | 7 | 2 | ..... | ..... | 125 | 15 | 14 |
| 30 | ..... | ..... | 8 | 8 | ..... | 28 | 28 | ..... | 3 | 2 | ..... | 4 | 50 | 25 | 15 |
| 22 | 4 | ..... | 7 | 7 | ..... | 18 | 18 | ..... | 5 | 2 | ..... | ..... | 150 | 22 | 16 |
| 6 | ..... | ..... | 2 | 2 | ..... | 6 | 6 | ..... | 1 | 1 | ..... | ..... | 10 | 4 | 17 |
| 13 | 1 | ..... | 4 | 4 | ..... | 12 | 12 | ..... | 4 | 1 | ..... | ..... | 130 | 13 | 18 |
| 10 | ..... | ..... | 4 | 4 | ..... | 10 | 10 | ..... | 1 | 2 | 1 | 4 | 68 | 1 | 19 |

[3] This company failed to make a report; the information given was obtained from street-railway journals and directories.

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | | With fenders. |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. | |
| | | | | | | Closed and open. | Passenger and express. | | | | | | | |
| | MARYLAND. | | | | | | | | | | | | | |
| | Total for state | 1,589 | 1,487 | 622 | 664 | 196 | 5 | 42 | 27 | 1 | 32 | 1,533 | 56 | 1,515 |
| 1 | United Railways | 1,488 | 1,418 | 590 | 632 | 196 | ..... | 12 | 26 | ..... | 32 | 1,475 | 13 | 1,475 |
| 2 | Cumberland Electric Railway | 19 | 17 | 9 | 8 | ..... | ..... | ..... | 1 | 1 | ..... | 15 | 4 | 10 |
| 3 | Frederick and Middletown | 43 | 13 | 4 | 7 | ..... | 2 | 30 | ..... | ..... | ..... | 7 | 36 | ..... |
| 4 | Kensington Railway | 2 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | ..... |
| 5 | Cumberland and Westernport | 4 | 4 | 3 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| 6 | Hagerstown Railway | 14 | 14 | 5 | 7 | ..... | 2 | ..... | ..... | ..... | ..... | 11 | 3 | 11 |
| 7 | Baltimore and Washington | 5 | 5 | 2 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 5 | ..... | 5 |
| 8 | Washington and Glen Echo | 10 | 10 | 3 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | 10 | ..... | 10 |
| 9 | Washington and Rockville | [1] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 10 | Washington, Woodside and Forest Glen | 4 | 4 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 | ..... | 4 |
| | MASSACHUSETTS. | | | | | | | | | | | | | |
| | Total for state | 8,310 | 7,275 | 3,401 | 3,869 | ..... | 5 | 94 | 197 | 740 | 4 | 7,801 | 509 | 7,021 |
| 1 | Amherst and Sunderland | 12 | 9 | 3 | 6 | ..... | ..... | 2 | ..... | 1 | ..... | 9 | 3 | 9 |
| 2 | Interstate Consolidated | 55 | 49 | 21 | 28 | ..... | ..... | ..... | ..... | 6 | ..... | 52 | 3 | 46 |
| 3 | Lexington and Boston | 54 | 47 | 16 | 31 | ..... | ..... | ..... | 1 | 6 | ..... | 54 | ..... | 47 |
| 4 | Old Colony Street Railway | 933 | 796 | 309 | 486 | ..... | ..... | ..... | 50 | 88 | ..... | 889 | 44 | 840 |
| 5 | Boston and Northern | 1,392 | 1,193 | 477 | 716 | ..... | ..... | 22 | 20 | 156 | 1 | 1,219 | 173 | 1,091 |
| 6 | Boston Elevated Railway | 3,612 | 3,281 | 1,734 | 1,547 | ..... | ..... | 11 | 30 | 290 | ..... | 3,487 | 125 | 3,131 |
| 7 | Lowell and Boston | 17 | 14 | 6 | 8 | ..... | ..... | ..... | 1 | 2 | ..... | 13 | 4 | 11 |
| 8 | New York, New Haven and Hartford Railroad | 28 | 28 | 24 | ..... | ..... | 4 | ..... | ..... | ..... | ..... | 9 | 19 | 9 |
| 9 | Blue Hill Street Railway | 18 | 15 | 8 | 7 | ..... | ..... | ..... | 2 | 1 | ..... | 11 | 7 | 15 |
| 10 | Hoosac Valley | 32 | 29 | 14 | 15 | ..... | ..... | ..... | 1 | 2 | ..... | 31 | 1 | 29 |
| 11 | Concord, Maynard and Hudson | 17 | 14 | 7 | 7 | ..... | ..... | ..... | 1 | 2 | ..... | 17 | ..... | 15 |
| 12 | Conway Electric Railway | 16 | 5 | 3 | 2 | ..... | ..... | 9 | 1 | 1 | ..... | 5 | 11 | ..... |
| 13 | Cottage City and Edgartown | 8 | 7 | 3 | 4 | ..... | ..... | ..... | 1 | ..... | ..... | 7 | 1 | ..... |
| 14 | Norfolk Western Railway | 17 | 13 | 10 | 3 | ..... | ..... | ..... | 2 | 2 | ..... | 11 | 6 | 8 |
| 15 | Greenfield and Deerfield | 6 | 4 | ..... | 4 | ..... | ..... | ..... | 2 | ..... | ..... | 4 | 2 | 4 |
| 16 | Providence and Fall River | 19 | 16 | 6 | 10 | ..... | ..... | ..... | ..... | 3 | ..... | 19 | ..... | 16 |
| 17 | Dartmouth and Westport | 24 | 19 | 7 | 12 | ..... | ..... | ..... | 3 | 2 | ..... | 24 | ..... | 22 |
| 18 | Fitchburg and Leominster | 62 | 58 | 22 | 31 | ..... | ..... | ..... | 5 | 3 | 1 | 61 | 1 | 58 |
| 19 | Framingham Union Street Railway | 17 | 15 | 6 | 9 | ..... | ..... | ..... | 1 | 1 | ..... | 14 | 3 | 13 |
| 20 | Gardner, Westminster and Fitchburg | 25 | 21 | 9 | 12 | ..... | ..... | 1 | 1 | 2 | ..... | 24 | 1 | 21 |
| 21 | Greenfield and Turners Falls | 17 | 15 | 7 | 8 | ..... | ..... | ..... | 1 | 1 | ..... | 16 | 1 | 15 |
| 22 | Haverhill and Southern New Hampshire | 12 | 11 | 5 | 6 | ..... | ..... | ..... | ..... | 1 | ..... | 12 | ..... | 11 |
| 23 | Haverhill, Georgetown and Danvers | 7 | 6 | 3 | 3 | ..... | ..... | ..... | ..... | 1 | ..... | 7 | ..... | 6 |
| 24 | Haverhill and Amesbury | 67 | 54 | 18 | 36 | ..... | ..... | ..... | 4 | 9 | ..... | 50 | 17 | 43 |
| 25 | Holyoke Street Railway | 130 | 114 | 42 | 72 | ..... | ..... | ..... | 7 | 8 | 1 | 130 | ..... | 114 |
| 26 | Lawrence and Reading | 13 | 12 | 4 | 8 | ..... | ..... | ..... | ..... | 1 | ..... | 13 | ..... | 12 |
| 27 | Lawrence and Methuen | 14 | 12 | 5 | 7 | ..... | ..... | ..... | ..... | 2 | ..... | 14 | ..... | 12 |
| 28 | Middleton and Danvers | 2 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 |
| 29 | Norfolk and Bristol | 27 | 23 | 9 | 14 | ..... | ..... | ..... | 2 | 2 | ..... | 25 | 2 | 23 |
| 30 | Marlboro Street Railway | 35 | 28 | 11 | 17 | ..... | ..... | ..... | 1 | 6 | ..... | 34 | 1 | 32 |
| 31 | Marlboro and Westboro | 15 | 12 | 6 | 6 | ..... | ..... | ..... | 1 | 2 | ..... | 15 | ..... | 13 |
| 32 | Medfield and Medway | 10 | 8 | 5 | 3 | ..... | ..... | ..... | ..... | 2 | ..... | 7 | 3 | 8 |
| 33 | Middleboro, Wareham and Buzzards Bay | 30 | 23 | 6 | 17 | ..... | ..... | 2 | 1 | 4 | ..... | 30 | ..... | 23 |
| 34 | Milford, Attleboro and Woonsocket | 29 | 26 | 10 | 16 | ..... | ..... | ..... | ..... | 3 | ..... | 29 | ..... | 6 |
| 35 | Milford and Uxbridge | 49 | 40 | 20 | 20 | ..... | ..... | 2 | ..... | 7 | ..... | 48 | 1 | 40 |
| 36 | Natick and Cochituate | 29 | 25 | 13 | 12 | ..... | ..... | ..... | 1 | 3 | ..... | 28 | 1 | 25 |
| 37 | South Middlesex Street Railway | 39 | 34 | 15 | 19 | ..... | ..... | ..... | 1 | 4 | ..... | 33 | 6 | 34 |
| 38 | Union Street Railway | 126 | 112 | 51 | 61 | ..... | ..... | ..... | 6 | 7 | 1 | 122 | 4 | 115 |
| 39 | New Bedford and Onset | 21 | 18 | 6 | 12 | ..... | ..... | ..... | 1 | 2 | ..... | 20 | 1 | 19 |
| 40 | Citizens Electric Railway | 49 | 43 | 16 | 27 | ..... | ..... | 3 | ..... | 3 | ..... | 45 | 4 | 37 |
| 41 | Georgetown, Rowley and Ipswich | 20 | 17 | 8 | 9 | ..... | ..... | ..... | ..... | 3 | ..... | 20 | ..... | 17 |
| 42 | Commonwealth Avenue | 38 | 34 | 13 | 21 | ..... | ..... | ..... | 1 | 3 | ..... | 38 | ..... | 34 |
| 43 | Wellesley and Boston | 15 | 14 | 5 | 9 | ..... | ..... | ..... | ..... | 1 | ..... | 15 | ..... | 14 |
| 44 | Newton and Boston | 28 | 26 | 11 | 15 | ..... | ..... | ..... | 2 | ..... | ..... | 28 | ..... | 28 |
| 45 | Newton Street Railway | 53 | 46 | 21 | 25 | ..... | ..... | ..... | 3 | 4 | ..... | 53 | ..... | 49 |
| 46 | Northampton Street Railway | 56 | 43 | 21 | 21 | ..... | 1 | 1 | 8 | 4 | ..... | 56 | ..... | 46 |
| 47 | Northampton and Amherst | 17 | 14 | 6 | 8 | ..... | ..... | ..... | 1 | 2 | ..... | 13 | 4 | 14 |
| 48 | Haverhill and Andover | [2] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 49 | Norton and Taunton | 24 | 18 | 10 | 8 | ..... | ..... | ..... | 2 | 4 | ..... | 23 | 1 | 18 |
| 50 | Athol and Orange | 11 | 10 | 5 | 5 | ..... | ..... | ..... | ..... | 1 | ..... | 11 | ..... | ..... |
| 51 | Pittsfield Electric | 37 | 29 | 13 | 16 | ..... | ..... | ..... | 6 | 2 | ..... | 33 | 4 | 29 |
| 52 | Plymouth and Sandwich | 4 | 4 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 4 | ..... | 4 |
| 53 | Brockton and Plymouth | 30 | 25 | 9 | 16 | ..... | ..... | ..... | 2 | 3 | ..... | 27 | 3 | 27 |
| 54 | Norwood, Canton and Sharon | 4 | 4 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 | ..... | 4 |
| 55 | Shelburne Falls and Coleraine | 14 | 5 | 3 | 2 | ..... | ..... | 8 | ..... | 1 | ..... | 4 | 10 | 5 |
| 56 | Southbridge and Sturbridge | 13 | 11 | 6 | 5 | ..... | ..... | ..... | 1 | 1 | ..... | 12 | 1 | 11 |
| 57 | Hampshire Street Railway | [2] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 58 | Springfield Street Railway | 254 | 219 | 105 | 114 | ..... | ..... | 16 | ..... | 19 | ..... | 231 | 23 | 235 |
| 59 | Springfield and Eastern | 43 | 34 | 13 | 21 | ..... | ..... | ..... | 3 | 6 | ..... | 41 | 2 | 32 |
| 60 | Stoughton and Randolph | 3 | 3 | ..... | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 3 |
| 61 | East Taunton Street Railway | 9 | 6 | 2 | 4 | ..... | ..... | ..... | 1 | 2 | ..... | 9 | ..... | 6 |
| 62 | Bristol County | 19 | 15 | 7 | 8 | ..... | ..... | ..... | 2 | 2 | ..... | 18 | 1 | 14 |
| 63 | Templeton Street Railway | 17 | 13 | 7 | 6 | ..... | ..... | 2 | ..... | 2 | ..... | 17 | ..... | 14 |
| 64 | Marthas Vineyard | 2 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 |
| 65 | Upton Street Railway | [2] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 66 | Reading, Wakefield and Lynnfield | [2] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 67 | Hampshire and Worcester | 13 | 12 | 4 | 8 | ..... | ..... | ..... | ..... | 1 | ..... | 13 | ..... | 4 |
| 68 | Warren, Brookfield and Spencer | 20 | 16 | 6 | 10 | ..... | ..... | ..... | 2 | 2 | ..... | 19 | 1 | 16 |
| 69 | Webster and Dudley | 10 | 8 | 2 | 6 | ..... | ..... | ..... | 1 | 1 | ..... | 9 | 1 | 8 |
| 70 | Woronoco Street Railway | 32 | 28 | 11 | 17 | ..... | ..... | ..... | 2 | 2 | ..... | 30 | 2 | 28 |
| 71 | Linwood Street Railway | 3 | 3 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 3 |
| 72 | Worcester Consolidated | 362 | 315 | 139 | 176 | ..... | ..... | 5 | 10 | 32 | ..... | 362 | ..... | 330 |
| 73 | Worcester and Blackstone Valley | 22 | 18 | 8 | 10 | ..... | ..... | 1 | 1 | 2 | ..... | 19 | 3 | 18 |
| 74 | Worcester and Southbridge | 32 | 21 | 9 | 12 | ..... | ..... | 9 | ..... | 2 | ..... | 24 | 8 | 21 |
| 75 | Worcester and Webster | 20 | 17 | 7 | 10 | ..... | ..... | ..... | 1 | 2 | ..... | 20 | ..... | 17 |

[1] Cars furnished by another company.

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | | | | Lamps for buildings, shops, car houses, etc. | | | |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | Stations. | Car houses. | Horses. | Arc. | Incandescent. | Miles of exclusive telephone lines. | Number. |
| 1,335 | 4 | 241 | 121 | 110 | 11 | 1,557 | 1,557 | ..... | 17 | 30 | 72 | 57 | 4,360 | 8 | |
| 1,234 | ..... | 241 | 86 | 86 | ..... | 1,488 | 1,488 | ..... | ..... | 24 | 72 | 50 | 4,000 | ..... | 1 |
| 19 | ..... | ..... | 9 | ..... | 9 | 17 | 17 | ..... | 2 | 1 | ..... | ..... | 95 | ..... | 2 |
| 43 | ..... | ..... | 4 | 4 | ..... | 13 | 13 | ..... | 5 | 3 | ..... | ..... | 45 | 8 | 3 |
| 2 | ..... | ..... | 2 | 2 | ..... | 2 | 2 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 4 |
| 4 | 4 | ..... | 4 | 4 | ..... | 4 | 4 | ..... | 1 | 1 | ..... | ..... | 120 | ..... | 5 |
| 14 | ..... | ..... | 7 | 7 | ..... | 14 | 14 | ..... | ..... | 1 | ..... | 7 | 50 | ..... | 6 |
| 5 | ..... | ..... | 2 | ..... | 2 | 5 | 5 | ..... | 2 | ..... | ..... | ..... | 40 | ..... | 7 |
| 10 | ..... | ..... | 3 | 3 | ..... | 10 | 10 | ..... | 1 | ..... | ..... | ..... | 10 | ..... | 8 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 | ..... | ..... | ..... | ..... | ..... | 9 |
| 4 | ..... | ..... | 4 | 4 | ..... | 4 | 4 | ..... | 2 | ..... | ..... | ..... | ..... | ..... | 10 |
| 8,274 | 1,207 | 5 | 3,244 | 3,232 | 12 | 7,709 | 7,709 | ..... | 129 | 236 | 421 | 594 | 34,212 | 891 | |
| 12 | 1 | ..... | 3 | 3 | ..... | 12 | 12 | ..... | ..... | 1 | ..... | ..... | 30 | 10 | 1 |
| 49 | ..... | ..... | 16 | 16 | ..... | 46 | 46 | ..... | ..... | 2 | 2 | ..... | 195 | ..... | 2 |
| 54 | 43 | ..... | 16 | 16 | ..... | 48 | 48 | ..... | 4 | 2 | 2 | ..... | 250 | 28 | 3 |
| 933 | 143 | ..... | 306 | 306 | ..... | 889 | 859 | ..... | ..... | 37 | 20 | 5 | 3,133 | 120 | 4 |
| 1,392 | 196 | ..... | 388 | 376 | 12 | 1,065 | 1,065 | ..... | ..... | 45 | 44 | 16 | 3,043 | 182 | 5 |
| 3,612 | 150 | ..... | 1,725 | 1,725 | ..... | 3,497 | 3,497 | ..... | 25 | 33 | 279 | 353 | 19,096 | ..... | 6 |
| 17 | 13 | ..... | 6 | 6 | ..... | 16 | 16 | ..... | ..... | 1 | ..... | ..... | 45 | 9 | 7 |
| 28 | 28 | ..... | 4 | 4 | ..... | 28 | 28 | ..... | 28 | 1 | ..... | ..... | ..... | ..... | 8 |
| 18 | 11 | 1 | 6 | 6 | ..... | 16 | 16 | ..... | 1 | 1 | ..... | ..... | 125 | 3 | 9 |
| 32 | 4 | ..... | 14 | 14 | ..... | 32 | 32 | ..... | 1 | 3 | 1 | 3 | 25 | ..... | 10 |
| 17 | 14 | ..... | 7 | 7 | ..... | 17 | 17 | ..... | 3 | 1 | ..... | ..... | 80 | 15 | 11 |
| 16 | ..... | ..... | 3 | 3 | ..... | 7 | 7 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 12 |
| 7 | ..... | ..... | ..... | ..... | ..... | 4 | 4 | ..... | ..... | 1 | ..... | 1 | ..... | ..... | 13 |
| 15 | ..... | ..... | 5 | 5 | ..... | 15 | 15 | ..... | 1 | 1 | ..... | ..... | 85 | ..... | 14 |
| 6 | 4 | ..... | ..... | ..... | ..... | 4 | 4 | ..... | ..... | 1 | ..... | ..... | 50 | 8 | 15 |
| 19 | 16 | ..... | 6 | 6 | ..... | 19 | 19 | ..... | ..... | 1 | ..... | ..... | 440 | 12 | 16 |
| 24 | 18 | ..... | 7 | 7 | ..... | 24 | 24 | ..... | 1 | ..... | ..... | ..... | ..... | 14 | 17 |
| 62 | 18 | ..... | 22 | 22 | ..... | 62 | 62 | ..... | 4 | 2 | 6 | 16 | 70 | 21 | 18 |
| 17 | 1 | ..... | 6 | 6 | ..... | 14 | 14 | ..... | ..... | 1 | ..... | ..... | 20 | ..... | 19 |
| 25 | 5 | ..... | 9 | 9 | ..... | 25 | 25 | ..... | ..... | 2 | ..... | 10 | 100 | 15 | 20 |
| 17 | ..... | ..... | 7 | 7 | ..... | 17 | 17 | ..... | ..... | 1 | ..... | ..... | 100 | 16 | 21 |
| 12 | 12 | ..... | 5 | 5 | ..... | 12 | 12 | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 22 |
| 7 | ..... | ..... | 3 | 3 | ..... | 7 | 7 | ..... | 1 | 1 | ..... | ..... | ..... | 6 | 23 |
| 67 | 6 | ..... | 15 | 15 | ..... | 50 | 50 | ..... | 8 | 4 | 5 | ..... | 170 | 26 | 24 |
| 130 | 12 | 4 | 42 | 42 | ..... | 130 | 130 | ..... | 2 | 5 | 4 | 30 | 550 | 30 | 25 |
| 13 | 10 | ..... | 4 | 4 | ..... | 12 | 12 | ..... | ..... | 1 | ..... | ..... | 25 | 9 | 26 |
| 14 | 14 | ..... | 5 | 5 | ..... | 14 | 14 | ..... | 1 | ..... | ..... | ..... | 5 | 7 | 27 |
| 2 | ..... | ..... | 2 | 2 | ..... | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 13 | 28 |
| 27 | 3 | ..... | 9 | 9 | ..... | 25 | 25 | ..... | 2 | 1 | ..... | ..... | 130 | ..... | 29 |
| 35 | 1 | ..... | 11 | 11 | ..... | 34 | 34 | ..... | ..... | 2 | 1 | ..... | 60 | ..... | 30 |
| 15 | 12 | ..... | 6 | 6 | ..... | 15 | 15 | ..... | 1 | 1 | ..... | 15 | 163 | ..... | 31 |
| 10 | 3 | ..... | 2 | 2 | ..... | 5 | 5 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 32 |
| 30 | 24 | ..... | 6 | 6 | ..... | 29 | 29 | ..... | ..... | 1 | 2 | ..... | 83 | ..... | 33 |
| 29 | 14 | ..... | 10 | 10 | ..... | 29 | 29 | ..... | ..... | 1 | ..... | ..... | 35 | 7 | 34 |
| 49 | 15 | ..... | 20 | 20 | ..... | 48 | 48 | ..... | 2 | 4 | ..... | ..... | 100 | 30 | 35 |
| 29 | 1 | ..... | 13 | 13 | ..... | 28 | 28 | ..... | 1 | 2 | 1 | ..... | 15 | ..... | 36 |
| 39 | 13 | ..... | 15 | 15 | ..... | 37 | 37 | ..... | 2 | 3 | ..... | ..... | 50 | ..... | 37 |
| 126 | 32 | ..... | 50 | 50 | ..... | 122 | 122 | ..... | ..... | 5 | 5 | 40 | 400 | 6 | 38 |
| 21 | 19 | ..... | 6 | 6 | ..... | 21 | 21 | ..... | 7 | 1 | ..... | ..... | 150 | 23 | 39 |
| 49 | 5 | ..... | 16 | 16 | ..... | 45 | 45 | ..... | 2 | 3 | 4 | ..... | 45 | 22 | 40 |
| 20 | ..... | ..... | 8 | 8 | ..... | 20 | 20 | ..... | 2 | 1 | 1 | ..... | 70 | 19 | 41 |
| 38 | 16 | ..... | 13 | 13 | ..... | 35 | 35 | ..... | 3 | 2 | 1 | ..... | 150 | 5 | 42 |
| 15 | ..... | ..... | 5 | 5 | ..... | 15 | 15 | ..... | 2 | ..... | ..... | ..... | 60 | ..... | 43 |
| 28 | 5 | ..... | 11 | 11 | ..... | 28 | 28 | ..... | 3 | 2 | 3 | 5 | 150 | ..... | 44 |
| 53 | ..... | ..... | 21 | 21 | ..... | 49 | 49 | ..... | 3 | 2 | 3 | ..... | 270 | ..... | 45 |
| 56 | 12 | ..... | 22 | 22 | ..... | 56 | 56 | ..... | ..... | 3 | 3 | ..... | 200 | 25 | 46 |
| 17 | 4 | ..... | 6 | 6 | ..... | 17 | 17 | ..... | ..... | 1 | 1 | ..... | 60 | 10 | 47 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 48 |
| 23 | ..... | ..... | 10 | 10 | ..... | 23 | 23 | ..... | ..... | 2 | ..... | ..... | 200 | 2 | 49 |
| 11 | ..... | ..... | 5 | 5 | ..... | 11 | 11 | ..... | ..... | 1 | ..... | ..... | 15 | 1 | 50 |
| 37 | 6 | ..... | 13 | 13 | ..... | 33 | 33 | ..... | ..... | 2 | 3 | ..... | 50 | ..... | 51 |
| 4 | ..... | ..... | 2 | 2 | ..... | 4 | 4 | ..... | 3 | 1 | ..... | ..... | 5 | ..... | 52 |
| 30 | 16 | ..... | 9 | 9 | ..... | 30 | 30 | ..... | ..... | 3 | 1 | ..... | 200 | 22 | 53 |
| 4 | ..... | ..... | 4 | 4 | ..... | 4 | 4 | ..... | 1 | 1 | ..... | ..... | 10 | ..... | 54 |
| 14 | ..... | ..... | 2 | 2 | ..... | 5 | 5 | ..... | ..... | 3 | ..... | ..... | 30 | ..... | 55 |
| 13 | ..... | ..... | 6 | 6 | ..... | 12 | 12 | ..... | ..... | 1 | ..... | 10 | 100 | 8 | 56 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 | 57 |
| 254 | 71 | ..... | 105 | 105 | ..... | 254 | 254 | ..... | 2 | 10 | 8 | 20 | 600 | ..... | 58 |
| 43 | 17 | ..... | 13 | 13 | ..... | 43 | 43 | ..... | 3 | 1 | 1 | ..... | 40 | 29 | 59 |
| 3 | 3 | ..... | 3 | 3 | ..... | 3 | 3 | ..... | 1 | 1 | ..... | ..... | ..... | ..... | 60 |
| 9 | 4 | ..... | 2 | 2 | ..... | 9 | 9 | ..... | ..... | 1 | ..... | ..... | 15 | ..... | 61 |
| 18 | 16 | ..... | 6 | 6 | ..... | 16 | 16 | ..... | ..... | 1 | ..... | 10 | 54 | 17 | 62 |
| 17 | 2 | ..... | 7 | 7 | ..... | 16 | 16 | ..... | ..... | 1 | ..... | ..... | 30 | ..... | 63 |
| 2 | ..... | ..... | 1 | 1 | ..... | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 64 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 65 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 66 |
| 13 | 6 | ..... | 4 | 4 | ..... | 13 | 13 | ..... | ..... | 1 | 1 | ..... | 30 | ..... | 67 |
| 20 | ..... | ..... | 6 | 6 | ..... | 20 | 20 | ..... | ..... | 2 | ..... | 10 | 90 | ..... | 68 |
| 10 | ..... | ..... | 2 | 2 | ..... | 9 | 9 | ..... | 1 | 1 | ..... | ..... | 30 | ..... | 69 |
| 32 | 7 | ..... | 11 | 11 | ..... | 32 | 32 | ..... | 1 | 1 | 1 | ..... | 150 | 5 | 70 |
| 3 | 1 | ..... | 3 | 3 | ..... | 3 | 3 | ..... | ..... | 1 | ..... | ..... | 70 | ..... | 71 |
| 348 | 114 | ..... | 124 | 124 | ..... | 362 | 362 | ..... | ..... | 14 | 17 | 25 | 1,350 | 65 | 72 |
| 22 | 8 | ..... | 8 | 8 | ..... | 22 | 22 | ..... | ..... | 1 | ..... | ..... | 165 | ..... | 73 |
| 21 | 21 | ..... | 9 | 9 | ..... | 21 | 21 | ..... | 10 | 1 | ..... | 20 | 1,000 | 20 | 74 |
| 20 | 17 | ..... | 7 | 7 | ..... | 20 | 20 | ..... | 1 | 1 | 1 | 5 | 150 | 15 | 75 |

[3] Cars rented.

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | | With fenders. |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. | |
| | | | | | | Closed and open. | Passenger and express. | | | | | | | |
| | MICHIGAN. | | | | | | | | | | | | | |
| | Total for state | 1,757 | 1,531 | 919 | 588 | 15 | 9 | 48 | 132 | 38 | 8 | 1,466 | 291 | 1,287 |
| 1 | Adrian Street Railway | 7 | 7 | 5 | 2 | | | | | | | 5 | 2 | 2 |
| 2 | Bay Cities Consolidated | 47 | 43 | 20 | 23 | | | | 2 | 1 | 1 | 41 | 6 | 43 |
| 3 | Benton Harbor and St. Joseph | 30 | 29 | 11 | 18 | | | | | | 1 | 15 | 15 | |
| 4 | Detroit United Railway | 920 | 838 | 533 | 305 | | | 12 | 54 | 16 | | 905 | 15 | 910 |
| 5 | Detroit and Port Huron Shore Line | 97 | 56 | 39 | 17 | | | 8 | 32 | 1 | | 58 | 39 | 58 |
| 6 | Detroit, Ypsilanti, Ann Arbor and Jackson | 37 | 34 | 29 | 4 | | 1 | 2 | 1 | | | 37 | | 37 |
| 7 | Escanaba Electric Railway | 17 | 12 | 8 | 4 | | | | 3 | 1 | 1 | 4 | 13 | |
| 8 | Grand Rapids Railway | 162 | 150 | 75 | 75 | | | 3 | 7 | | 2 | 124 | 38 | 123 |
| 9 | Grand Rapids, Grand Haven and Muskegon | 19 | 15 | 15 | | | | 3 | 1 | | | 19 | | 19 |
| 10 | Grand Rapids, Holland and Lake Michigan | 38 | 19 | 11 | 6 | | 2 | 17 | | 2 | | 24 | 14 | 22 |
| 11 | Houghton County Street Railway | 30 | 16 | 16 | | | | | 10 | 4 | | 20 | 10 | |
| 12 | Twin City General Electric | 6 | 4 | 4 | | | | | 1 | 1 | | 5 | 1 | |
| 13 | Negaunee and Ishpeming | 13 | 10 | 4 | 6 | | | | 2 | 1 | | 10 | 3 | |
| 14 | Jackson and Suburban Traction | 23 | 21 | 12 | 9 | | | | 2 | | | 21 | 2 | 16 |
| 15 | Michigan Traction | 64 | 61 | 29 | 20 | 12 | | 1 | | 1 | 1 | 53 | 11 | 31 |
| 16 | Lansing City Electric | 17 | 16 | 10 | 6 | | | | | 1 | | 11 | 6 | |
| 17 | Manistee, Filer City and Eastlake | 34 | 29 | 10 | 19 | | | | 3 | 1 | 1 | 18 | 16 | |
| 18 | Marquette and Presque Isle | 18 | 12 | 7 | 5 | | | 1 | 5 | | | 8 | 10 | |
| 19 | Menominee Light, Railway and Power | 19 | 18 | 9 | 9 | | | | | 1 | | 9 | 10 | 8 |
| 20 | Toledo and Monroe | 14 | 11 | 7 | 2 | | 2 | | 2 | 1 | | 11 | 3 | 12 |
| 21 | Muskegon Traction and Lighting | 58 | 54 | 26 | 25 | 3 | | 1 | 2 | | 1 | 19 | 39 | |
| 22 | Detroit, Plymouth and Northville | 7 | 6 | 4 | 2 | | | | 1 | | | 6 | 1 | 6 |
| 23 | Owosso and Corunna Electric | 6 | 5 | 1 | 2 | | 2 | | 1 | | | 4 | 2 | |
| 24 | Saginaw Valley Traction | 74 | 65 | 34 | 29 | | 2 | | 3 | 6 | | 39 | 35 | |
| | MINNESOTA. | | | | | | | | | | | | | |
| | Total for state | 1,083 | 1,026 | 717 | 309 | | | | 32 | 21 | 4 | 814 | 269 | 794 |
| 1 | Interstate Traction | 8 | 8 | 4 | 4 | | | | | | | 5 | 3 | 8 |
| 2 | Duluth-Superior Traction | 126 | 115 | 114 | 1 | | | | 8 | 1 | 2 | 110 | 16 | 119 |
| 3 | Twin City Rapid Transit | 930 | 886 | 585 | 301 | | | | 23 | 20 | 1 | 683 | 247 | 659 |
| 4 | Benton Power and Traction | 8 | 8 | 7 | 1 | | | | | | | 7 | 1 | |
| 5 | Winona Railway and Light | 11 | 9 | 7 | 2 | | | | 1 | | 1 | 9 | 2 | 8 |
| | MISSISSIPPI. | | | | | | | | | | | | | |
| | Total for state | 49 | 47 | 31 | 16 | | | | 2 | | | 37 | 12 | 4 |
| 1 | Greenville Light and Car | 6 | 6 | 6 | | | | | | | | 3 | 3 | |
| 2 | Jackson Railway, Light and Power | 11 | 10 | 6 | 4 | | | | 1 | | | 9 | 2 | |
| 3 | Meridian Light and Railway | 10 | 9 | 7 | 2 | | | | 1 | | | 7 | 3 | |
| 4 | Natchez Railway and Power | 4 | 4 | 4 | | | | | | | | 4 | | 4 |
| 5 | Vicksburg Railroad, Power and Manufacturing | 18 | 18 | 8 | 10 | | | | | | | 14 | 4 | |
| | MISSOURI. | | | | | | | | | | | | | |
| | Total for state | 2,484 | 2,305 | 1,465 | 527 | 310 | 3 | 27 | 86 | 6 | 60 | 1,932 | 552 | 2,177 |
| 1 | Citizens Street Railway | 1 | 1 | | 1 | | | | | | | | 1 | |
| 2 | Carrollton Electric Railway | 4 | 2 | | | | 2 | 1 | 1 | | | 3 | 1 | |
| 3 | Clinton Street Railway | 2 | 2 | 1 | 1 | | | | | | | | 2 | |
| 4 | Hannibal Railway and Electric | 6 | 6 | 3 | 3 | | | | | | | 6 | | 6 |
| 5 | Southwest Missouri Electric Railway | 40 | 36 | 25 | 11 | | | 1 | 3 | | | 38 | 2 | |
| 6 | Metropolitan | 845 | 801 | 443 | 245 | 113 | | 4 | 14 | | 26 | 399 | 446 | 805 |
| 7 | Missouri Water, Light and Traction | 9 | 9 | 2 | 7 | | | | | | | 5 | 4 | |
| 8 | St. Joseph Railway, Light, Heat and Power | 170 | 157 | 75 | 82 | | | 2 | 4 | 4 | 3 | 105 | 65 | 157 |
| 9 | St. Louis Transit | 1,179 | 1,090 | 750 | 153 | 187 | | 12 | 49 | | 28 | 1,175 | 4 | 1,059 |
| 10 | St. Louis and Suburban | 78 | 66 | 66 | | | | 3 | 7 | | 2 | 74 | 4 | 78 |
| 11 | St. Louis and Meramec River | 64 | 60 | 60 | | | | 1 | 2 | | 1 | 64 | | 62 |
| 12 | St. Louis and Kirkwood | 10 | 10 | | | 10 | | | | | | 10 | | 10 |
| 13 | St. Louis, St. Charles and Western | 22 | 15 | 14 | | | 1 | 3 | 4 | | | 18 | 4 | |
| 14 | Railway and Electric of Sedalia | 18 | 16 | 6 | 10 | | | | 2 | | | 17 | 1 | |
| 15 | Kickapoo Transit | 3 | 3 | 3 | | | | | | | | | 3 | |
| 16 | Springfield Traction | 33 | 31 | 17 | 14 | | | | | 2 | | 18 | 15 | |
| | MONTANA. | | | | | | | | | | | | | |
| | Total for state | 109 | 90 | 62 | 28 | | | 9 | 6 | 2 | 2 | 79 | 30 | 17 |
| 1 | Anaconda Copper Mining | 22 | 18 | 12 | 6 | | | | 2 | 1 | 1 | 5 | 17 | |
| 2 | Bozeman Street Railway | 3 | 2 | 2 | | | | 1 | | | | 2 | 1 | |
| 3 | Butte Electric Railway | 49 | 39 | 24 | 15 | | | 8 | 1 | | 1 | 49 | | |
| 4 | Great Falls Street Railway | 18 | 16 | 13 | 3 | | | | 2 | | | 10 | 8 | |
| 5 | Helena Power and Light | 17 | 15 | 11 | 4 | | | | 1 | 1 | | 13 | 4 | 17 |
| | NEBRASKA. | | | | | | | | | | | | | |
| | Total for state | 295 | 282 | 163 | 118 | 1 | | 1 | 5 | | 7 | 271 | 24 | 206 |
| 1 | Lincoln Traction | 80 | 73 | 41 | 31 | 1 | | 1 | 5 | | 1 | 60 | 20 | 4 |
| 2 | Nebraska City Street Railway | 4 | 4 | 4 | | | | | | | | | 4 | |
| 3 | Omaha Street Railway | 208 | 202 | 115 | 87 | | | | | | 6 | 208 | | 202 |
| 4 | Metropolitan Cable Railway | 3 | 3 | 3 | | | | | | | | 3 | | |

[1] Horses rented.

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | Stations. | Car houses. | Horses. | Lamps for buildings, shops, car houses, etc. | | Miles of exclusive telephone lines. | Number. |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | | | | Arc. | Incandescent. | | |
| 1,735 | 183 | 11 | 953 | 186 | 772 | 1,658 | 1,657 | 1 | 76 | 56 | 38 | 107 | 10,406 | 508 | |
| 7 | | | 5 | 2 | 3 | 7 | 7 | | | 1 | | | 5 | | 1 |
| 47 | | | 18 | 18 | | 43 | 43 | | | 2 | 4 | 20 | 2,000 | | 2 |
| 30 | | | 10 | 10 | | 30 | 30 | | | 2 | 1 | 3 | 25 | | 3 |
| 920 | 58 | | 546 | 4 | 542 | 910 | 910 | | 22 | 15 | 8 | | 1,800 | 150 | 4 |
| 97 | 31 | | 47 | | 47 | 71 | 70 | 1 | 6 | 5 | 4 | | 500 | 100 | 5 |
| 37 | 26 | | 29 | 6 | 23 | 37 | 37 | | 11 | 4 | | | 100 | 78 | 6 |
| 17 | | | 9 | 8 | 1 | 13 | 13 | | 1 | 1 | 1 | | 150 | | 7 |
| 162 | | 11 | 75 | 17 | 58 | 160 | 160 | | | 3 | 6 | 40 | 3,000 | | 8 |
| 19 | 19 | | 15 | 15 | | 19 | 19 | | 8 | 1 | | 3 | 500 | 45 | 9 |
| 38 | 13 | | 16 | | 16 | 23 | 23 | | 7 | 1 | | | 300 | 44 | 10 |
| 30 | 12 | | 16 | 16 | | 20 | 20 | | 7 | 2 | 2 | | 150 | 14 | 11 |
| 5 | | | 4 | 4 | | 5 | 5 | | | 1 | | | 100 | | 12 |
| 11 | | | 4 | | 4 | 10 | 10 | | 4 | 1 | | | 100 | | 13 |
| 23 | 2 | | 12 | | 12 | 23 | 23 | | 2 | 1 | | 4 | 16 | 11 | 14 |
| 57 | 7 | | 40 | 33 | 7 | 64 | 64 | | 2 | 3 | 3 | 2 | 200 | 32 | 15 |
| 17 | | | 10 | | 10 | 17 | 17 | | 1 | 1 | 1 | | 20 | | 16 |
| 34 | | | 10 | 10 | | 29 | 29 | | 1 | 1 | | 15 | 90 | | 17 |
| 12 | | | 6 | 5 | 1 | 12 | 12 | | | 1 | | | 55 | | 18 |
| 19 | | | 9 | | 9 | 18 | 18 | | | 1 | 3 | | 105 | | 19 |
| 14 | 9 | | 7 | 2 | 5 | 11 | 11 | | | 1 | | | 15 | 25 | 20 |
| 58 | | | 29 | 29 | | 56 | 56 | | 2 | 1 | | 10 | 400 | | 21 |
| 6 | | | 2 | 2 | | 6 | 6 | | | 1 | | | 250 | | 22 |
| 6 | | | 3 | 3 | | 5 | 5 | | | 1 | 2 | | 25 | | 23 |
| 69 | 6 | | 36 | 2 | 34 | 69 | 69 | | 2 | 5 | 3 | 10 | 500 | 9 | 24 |
| 1,083 | 58 | 3 | 599 | 2 | 597 | 1,078 | 1,078 | | 6 | 13 | 26 | 174 | 2,492 | 18 | |
| 8 | | | 4 | | 4 | 8 | 8 | | | 1 | | | 12 | | 1 |
| 126 | | | 115 | 1 | 114 | 122 | 122 | | 3 | 2 | 8 | 50 | 300 | | 2 |
| 930 | 58 | 3 | 467 | 1 | 466 | 930 | 930 | | 3 | 9 | 17 | 123 | 2,050 | 18 | 3 |
| 8 | | | 7 | | 7 | 8 | 8 | | | | | | 30 | | 4 |
| 11 | | | 6 | | 6 | 10 | 10 | | | 1 | 1 | 1 | 100 | | 5 |
| 49 | | | 10 | 8 | 2 | 48 | 48 | | 2 | 5 | 4 | 7 | 242 | | |
| 6 | | | 2 | | 2 | 6 | 6 | | | 1 | | | | | 1 |
| 11 | | | | | | 11 | 11 | | 2 | 1 | 1 | 3 | 20 | | 2 |
| 10 | | | | | | 9 | 9 | | | 1 | | 2 | 52 | | 3 |
| 4 | | | | | | 4 | 4 | | | 1 | | | 20 | | 4 |
| 18 | | | 8 | 8 | | 18 | 18 | | | 1 | 3 | 2 | 150 | | 5 |
| 2,395 | 100 | 309 | 1,589 | 530 | 1,059 | 2,356 | 1,918 | 438 | 34 | 56 | 139 | 39 | 11,325 | 170 | |
| 1 | | | | | | 1 | | 1 | | 1 | (1) | | | | 1 |
| 3 | | | 2 | | 2 | 3 | 3 | | 1 | 1 | | | 6 | | 2 |
| 2 | | | | | | | | | | | (1) | | | | 3 |
| 6 | | | 3 | 3 | | 6 | 6 | | | 1 | | | 25 | | 4 |
| 40 | | | 22 | 22 | | 38 | 38 | | 4 | 3 | | | 500 | 31 | 5 |
| 845 | 86 | 132 | 443 | 325 | 118 | 839 | 405 | 434 | 12 | 18 | 20 | 17 | 750 | | 6 |
| 9 | | | 2 | | 2 | 9 | 9 | | | 1 | | | 20 | | 7 |
| 170 | | | 60 | 60 | | 157 | 157 | | | 3 | 2 | 19 | 275 | | 8 |
| 1,093 | 13 | 171 | 900 | | 900 | 1,095 | 1,095 | | 4 | 28 | 100 | | 7,500 | 18 | 9 |
| 78 | 1 | 6 | 66 | 60 | 6 | 66 | 66 | | 1 | 1 | | | 1,394 | 46 | 10 |
| 64 | | | 60 | 60 | | 63 | 63 | | 6 | 1 | | | 330 | 35 | 11 |
| 10 | | | 10 | | 10 | 10 | 10 | | | 1 | | | 70 | 27 | 12 |
| 20 | | | 15 | | 15 | 18 | 18 | | 6 | 3 | | | 350 | 13 | 13 |
| 18 | | | 6 | | 6 | 17 | 17 | | | 2 | | 1 | 30 | | 14 |
| 3 | | | | | | 3 | | 3 | | 1 | 15 | | | | 15 |
| 33 | | | | | | 31 | 31 | | | 1 | 2 | 2 | 75 | | 16 |
| 107 | 7 | 47 | 60 | 60 | | 94 | 86 | 8 | 1 | 7 | 2 | 34 | 390 | 1 | |
| 22 | 7 | | 12 | 12 | | 13 | 13 | | | 2 | | 8 | 25 | | 1 |
| 3 | | | 2 | 2 | | 2 | 2 | | | 1 | 1 | | 10 | | 2 |
| 49 | | 47 | 22 | 22 | | 48 | 40 | 8 | | 2 | 1 | 10 | 75 | | 3 |
| 16 | | | 13 | 13 | | 16 | 16 | | 1 | 1 | | 1 | 30 | 1 | 4 |
| 17 | | | 11 | 11 | | 15 | 15 | | | 1 | | 15 | 250 | | 5 |
| 295 | | 16 | 165 | | 165 | 285 | 281 | 4 | 1 | 8 | 30 | 11 | 725 | | |
| 80 | | | 43 | | 43 | 76 | 76 | | | 3 | 4 | 1 | 300 | | 1 |
| 4 | | | 4 | | 4 | 4 | | 4 | | | 14 | | | | 2 |
| 208 | | 16 | 115 | | 115 | 202 | 202 | | | 4 | 12 | 10 | 400 | | 3 |
| 3 | | | 3 | | 3 | 3 | 3 | | 1 | 1 | | | 25 | | 4 |

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | | With fenders. |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. | |
| | | | | | | Closed and open. | Passenger and express. | | | | | | | |
| | NEW HAMPSHIRE. | | | | | | | | | | | | | |
| | Total for state | 287 | 244 | 96 | 146 | 1 | 1 | 2 | 16 | 22 | 3 | 234 | 53 | 209 |
| 1 | Concord Street Railway | [1]33 | 29 | 12 | 17 | | | | 2 | 2 | | 27 | 6 | |
| 2 | Chester and Derry | 11 | 10 | 5 | 4 | | 1 | | | 1 | | 11 | | |
| 3 | Exeter, Hampton and Amesbury | 99 | 78 | 31 | 46 | 1 | | 2 | 10 | 9 | | 89 | 10 | 80 |
| 4 | Keene Electric Railway | 11 | 9 | 4 | 5 | | | | | 2 | | 11 | | 11 |
| 5 | Laconia Street Railway | 11 | 9 | 3 | 6 | | | | 1 | 1 | | 11 | | 9 |
| 6 | Manchester Street Railway | 99 | 88 | 31 | 57 | | | | 2 | 6 | 3 | 63 | 36 | 88 |
| 7 | Portsmouth Electric Railway | 23 | 21 | 10 | 11 | | | | 1 | 1 | | 22 | 1 | 21 |
| | NEW JERSEY. | | | | | | | | | | | | | |
| | Total for state | 2,165 | 1,942 | 1,083 | 832 | 22 | 5 | 9 | 94 | 45 | 75 | 1,955 | 210 | 1,891 |
| 1 | West Jersey and Seashore | 84 | 80 | 17 | 60 | | 3 | | 3 | | 1 | 65 | 19 | 61 |
| 2 | Bridgeton and Millville | 28 | 24 | 12 | 11 | | 1 | | 2 | 1 | 1 | 21 | 7 | |
| 3 | Brigantine Transportation | 10 | 8 | | 6 | 2 | | | 2 | | | 7 | 3 | |
| 4 | Camden, Gloucester and Woodbury | 64 | 60 | 13 | 47 | | | | 2 | | 2 | 64 | | 64 |
| 5 | Camden and Suburban | 124 | 114 | 70 | 36 | 8 | | | 5 | 1 | 4 | 122 | 2 | 120 |
| 6 | Cape May, Delaware Bay and Sewells Point | 14 | 11 | | 10 | 1 | | | 3 | | | 11 | 3 | |
| 7 | Elizabeth, Plainfield and Central Jersey | 90 | 83 | 41 | 42 | | | | 4 | | 3 | 90 | | 83 |
| 8 | New Jersey and Hudson River Railway and Ferry | 24 | 21 | 11 | 10 | | | | 2 | 1 | | 20 | 4 | 21 |
| 9 | Jersey City, Hoboken and Paterson | 446 | 415 | 255 | 159 | | 1 | 2 | 7 | 4 | 18 | 409 | 37 | 428 |
| 10 | North Jersey Street Railway | 880 | 771 | 509 | 262 | | | | 42 | 30 | 37 | 830 | 50 | 801 |
| 11 | Jersey Central Traction | 4 | 4 | 2 | 2 | | | | | | | 4 | | |
| 12 | Monmouth County Electric | 19 | 16 | 6 | 9 | 1 | | | 2 | | 1 | 17 | 2 | 17 |
| 13 | Atlantic Coast Electric Railroad | 83 | 75 | 9 | 62 | 4 | | 5 | 2 | 1 | | 73 | 10 | 73 |
| 14 | Millville Traction | 16 | 13 | 6 | 7 | | | | 2 | 1 | | 10 | 6 | |
| 15 | Mt. Holly Street Railway | 8 | 8 | 8 | | | | | | | | | 8 | |
| 16 | Middlesex and Somerset | 57 | 52 | 26 | 26 | | | | 1 | 3 | 1 | 44 | 13 | 40 |
| 17 | Ocean City Electric Railroad | 8 | 8 | 1 | 7 | | | | | | | 8 | | |
| 18 | Orange and Passaic Valley | 41 | 35 | 18 | 17 | | | | 3 | 1 | 2 | 40 | 1 | 36 |
| 19 | South Orange and Maplewood | 9 | 5 | 4 | 1 | | | 1 | 2 | | 1 | 6 | 3 | 5 |
| 20 | Raritan Traction | 22 | 20 | 9 | 10 | 1 | | | 1 | 1 | | 22 | | 17 |
| 21 | Point Pleasant Traction, Electric Light and Power | 5 | 5 | | 5 | | | | | | | 5 | | |
| 22 | Newark and Hackensack | 14 | 12 | 10 | 2 | | | | 2 | | | 13 | 1 | 13 |
| 23 | Trenton Street Railway | 95 | 89 | 48 | 41 | | | | 1 | 1 | 4 | 56 | 39 | 89 |
| 24 | Camden and Trenton | 18 | 13 | 10 | | 3 | | | 5 | | | 14 | 4 | 13 |
| 25 | Trenton, Lawrenceville and Princeton | [2]5 | 3 | 3 | | | | 1 | 1 | | | 4 | 1 | |
| 26 | Orange Mountain Traction | 2 | 2 | | | 2 | | | | | | | 2 | |
| | NEW MEXICO. | | | | | | | | | | | | | |
| | Total for territory | 8 | 8 | 6 | 2 | | | | | | | | 8 | 2 |
| 1 | Albuquerque Street Railroad | 8 | 8 | 6 | 2 | | | | | | | | 8 | 2 |
| | NEW YORK. | | | | | | | | | | | | | |
| | Total for state | 14,040 | 12,978 | 7,888 | 4,626 | 448 | 16 | 181 | 452 | 241 | 188 | 10,222 | 3,818 | 7,123 |
| 1 | Albany and Hudson Railway and Power | [3]54 | 34 | 26 | 5 | | 3 | 18 | | 2 | | 34 | 20 | 29 |
| 2 | United Traction | 396 | 356 | 200 | 156 | | | 6 | 15 | 12 | 7 | 396 | | 377 |
| 3 | Hudson Valley Railway | 140 | 103 | 36 | 67 | | | 24 | 7 | 6 | | 109 | 31 | 7 |
| 4 | Troy and New England | 26 | 17 | 8 | 9 | | | 8 | | 1 | | 10 | 16 | 5 |
| 5 | Amsterdam Street Railroad | 24 | 22 | 8 | 14 | | | | | 1 | 1 | 20 | 4 | 18 |
| 6 | Auburn City Railway | 23 | 22 | 11 | 11 | | | | | | 1 | 21 | 2 | 20 |
| 7 | Auburn Interurban Electric | 6 | 4 | 4 | | | | 1 | | 1 | | 6 | | 4 |
| 8 | Ballston Terminal Railroad | 11 | 2 | 1 | | | 1 | 7 | 2 | | | 2 | 9 | |
| 9 | Binghamton Railway | 112 | 81 | 42 | 39 | | | 2 | 26 | 2 | 1 | 67 | 45 | 61 |
| 10 | International Railway | 670 | 567 | 308 | 259 | | | 3 | 52 | 45 | 3 | 519 | 151 | 463 |
| 11 | Crosstown Street Railway | 251 | 251 | 221 | 30 | | | | | | | 251 | | 251 |
| 12 | Buffalo and Depew | 8 | 5 | 5 | | | | | 3 | | | 5 | 3 | 5 |
| 13 | Buffalo, Hamburg and Aurora | 11 | 7 | 5 | 2 | | | 2 | 2 | | | 5 | 6 | 7 |
| 14 | Ontario Light and Traction | 7 | 7 | 2 | 5 | | | | | | | 3 | 4 | |
| 15 | Catskill Electric Railway | 10 | 10 | 4 | 6 | | | | | | | 7 | 3 | 7 |
| 16 | Cohoes City Railway | 17 | 14 | 8 | 6 | | | | 1 | 1 | 1 | 17 | | 14 |
| 17 | Cortland County Traction | 21 | 18 | 5 | 13 | | | 1 | | 2 | | 13 | 8 | |
| 18 | Corning and Painted Post | 12 | 11 | 5 | 6 | | | | | 1 | | 11 | 1 | 10 |
| 19 | Dunkirk and Fredonia | 23 | 19 | 8 | 11 | | | 3 | | | 1 | 8 | 15 | 19 |
| 20 | Dunkirk and Point Gratiot | 12 | 12 | 3 | 9 | | | | | | | 12 | | 3 |
| 21 | Elmira Water, Light and Railroad | 78 | 74 | 37 | 37 | | | | 1 | 2 | 1 | 71 | 7 | 62 |
| 22 | Ocean Electric Railway | 5 | 5 | | 5 | | | | | | | 2 | 3 | 2 |
| 23 | Citizens Street Railway | 18 | 17 | 7 | 10 | | | | | 1 | | 13 | 5 | 17 |
| 24 | Fonda, Johnstown and Gloversville | 29 | 23 | 16 | 7 | | | 1 | 5 | | | 27 | 2 | 27 |
| 25 | Lake Ontario and Riverside | 3 | 3 | 3 | | | | | | | | | 3 | |
| 26 | Geneva, Waterloo, etc., Traction | 35 | 32 | 16 | 15 | | 1 | | 1 | 1 | 1 | 27 | 8 | |
| 27 | Mountain Lake Electric | 5 | 5 | | 4 | 1 | | | | | | 5 | | |
| 28 | Bennington and Hoosick Valley | 19 | 15 | 7 | 8 | | | 2 | 1 | 1 | | 17 | 2 | 16 |
| 29 | Hornellsville Electric Railway | 13 | 11 | 6 | | 5 | | | 2 | | | 6 | 7 | 6 |
| 30 | Hornellsville and Canisteo | 7 | 5 | 2 | 1 | 2 | | 1 | | 1 | | 3 | 4 | 3 |
| 31 | Huntington Railroad | 12 | 9 | 5 | 4 | | | 1 | 2 | | | 5 | 7 | |
| 32 | Ithaca Street Railway | 30 | 29 | 12 | 17 | | | | | 1 | | 27 | 3 | |
| 33 | Jamestown Street Railway | 56 | 51 | 27 | 24 | | | 1 | 2 | | 2 | 50 | 6 | |
| 34 | Kingston Consolidated | 40 | 38 | 14 | 24 | | | | 1 | 1 | | 40 | | |
| 35 | Lewiston and Youngstown Frontier | 9 | 7 | 2 | 5 | | | 2 | | | | 9 | | 9 |
| 36 | Lima-Honeoye Light and Railroad | 5 | 2 | 2 | | | | 1 | 1 | 1 | | 2 | 3 | |
| 37 | Middletown-Goshen Electric | 24 | 20 | 9 | 11 | | | 1 | 2 | 1 | | 18 | 6 | 17 |
| 38 | New York and Long Island Traction | 5 | 4 | 4 | | | | | 1 | | | 4 | 1 | |

[1] Exclusive of 1 steam motor

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | | | | Lamps for buildings, shops, car houses, etc. | | | |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | Stations. | Car houses. | Horses. | Arc. | Incandescent. | Miles of exclusive telephone lines. | Number. |
| 287 | 89 | ..... | 95 | 92 | 3 | 266 | 266 | ..... | 17 | 14 | 12 | 83 | 847 | 127 | |
| 33 | ..... | ..... | 11 | 8 | 3 | 29 | 29 | ..... | 3 | 1 | 4 | 18 | 250 | 10 | 1 |
| 11 | ..... | ..... | 5 | 5 | ..... | 10 | 10 | ..... | 2 | 1 | ..... | ..... | 15 | 8 | 2 |
| 99 | 39 | ..... | 31 | 31 | ..... | 89 | 89 | ..... | 3 | 6 | ..... | 15 | 195 | 75 | 3 |
| 11 | ..... | ..... | 4 | 4 | ..... | 11 | 11 | ..... | 1 | 1 | ..... | ..... | 75 | ..... | 4 |
| 11 | ..... | ..... | 3 | 3 | ..... | 9 | 9 | ..... | ..... | 1 | ..... | ..... | 50 | ..... | 5 |
| 99 | 40 | ..... | 31 | 31 | ..... | 96 | 96 | ..... | ..... | 3 | 8 | 45 | 157 | 18 | 6 |
| 23 | 10 | ..... | 10 | 10 | ..... | 22 | 22 | ..... | 8 | 1 | ..... | 5 | 105 | 16 | 7 |
| 2,154 | 49 | 308 | 1,087 | 655 | 432 | 2,099 | 2,094 | 5 | 22 | 64 | 87 | 191 | 11,782 | 247 | |
| 84 | 1 | ..... | 20 | 20 | ..... | 84 | 84 | ..... | 4 | 1 | 1 | 2 | 540 | 9 | 1 |
| 28 | 3 | 2 | 13 | 13 | ..... | 26 | 26 | ..... | ..... | 2 | ..... | ..... | 100 | 31 | 2 |
| 10 | ..... | ..... | ..... | ..... | ..... | 8 | 8 | ..... | ..... | 2 | 1 | ..... | 100 | 7 | 3 |
| 64 | ..... | ..... | 13 | 13 | ..... | 64 | 64 | ..... | 1 | 2 | 1 | ..... | 225 | 9 | 4 |
| 124 | ..... | 5 | 65 | ..... | 65 | 124 | 124 | ..... | ..... | 3 | 9 | 25 | 2,570 | 30 | 5 |
| 14 | ..... | ..... | 1 | ..... | 1 | 11 | 11 | ..... | 4 | 2 | ..... | ..... | 100 | ..... | 6 |
| 90 | ..... | ..... | 41 | ..... | 41 | 86 | 86 | ..... | 2 | 4 | 2 | ..... | 298 | ..... | 7 |
| 24 | 2 | 15 | 11 | 11 | ..... | 24 | 24 | ..... | ..... | 1 | ..... | ..... | 155 | ..... | 8 |
| 446 | ..... | 43 | 256 | 156 | 100 | 417 | 417 | ..... | ..... | 9 | 20 | 25 | 2,020 | ..... | 9 |
| 880 | 17 | 223 | 509 | 309 | 200 | 880 | 880 | ..... | ..... | 17 | 39 | 45 | 3,169 | 150 | 10 |
| 4 | ..... | ..... | 2 | ..... | 2 | 4 | 4 | ..... | ..... | 1 | ..... | ..... | 50 | ..... | 11 |
| 19 | ..... | ..... | 6 | 6 | ..... | 17 | 17 | ..... | 2 | 1 | ..... | ..... | 175 | ..... | 12 |
| 81 | 5 | ..... | 13 | 13 | ..... | 88 | 88 | ..... | ..... | 1 | ..... | 90 | 675 | ..... | 13 |
| 16 | ..... | ..... | 6 | 1 | 5 | 13 | 13 | ..... | ..... | 2 | ..... | 3 | 100 | ..... | 14 |
| 3 | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 3 | ..... | 1 | 2 | ..... | ..... | ..... | 15 |
| 57 | 12 | ..... | 26 | 26 | ..... | 57 | 57 | ..... | 1 | 4 | 1 | ..... | 235 | ..... | 16 |
| 8 | ..... | ..... | 1 | 1 | ..... | 8 | 8 | ..... | ..... | 2 | ..... | ..... | 65 | ..... | 17 |
| 40 | ..... | 20 | 18 | 3 | 15 | 39 | 39 | ..... | 1 | 1 | 2 | ..... | 115 | ..... | 18 |
| 7 | 1 | ..... | 4 | 4 | ..... | 6 | 6 | ..... | 1 | 1 | ..... | ..... | 50 | ..... | 19 |
| 20 | ..... | ..... | 10 | 10 | ..... | 20 | 20 | ..... | ..... | 1 | 2 | ..... | 75 | 1 | 20 |
| 5 | ..... | ..... | ..... | ..... | ..... | 5 | 5 | ..... | ..... | 1 | ..... | 1 | 50 | ..... | 21 |
| 14 | ..... | ..... | 10 | 10 | ..... | 12 | 12 | ..... | 1 | 1 | ..... | ..... | 45 | ..... | 22 |
| 95 | 5 | ..... | 48 | 48 | ..... | 89 | 89 | ..... | ..... | 2 | 7 | ..... | 300 | ..... | 23 |
| 14 | ..... | ..... | 11 | 11 | ..... | 13 | 13 | ..... | 1 | 2 | ..... | ..... | 15 | 10 | 24 |
| 5 | 3 | ..... | 3 | ..... | 3 | 4 | 4 | ..... | 3 | ..... | ..... | ..... | 30 | ..... | 25 |
| 2 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | 1 | ..... | ..... | ..... | 25 | ..... | 26 |
| 8 | ..... | ..... | ..... | ..... | ..... | 8 | ..... | 8 | 1 | 1 | 14 | ..... | ..... | ..... | |
| 8 | ..... | ..... | ..... | ..... | ..... | 8 | ..... | 8 | 1 | 1 | 14 | ..... | ..... | ..... | 1 |
| 13,805 | 2,070 | 1,150 | 8,734 | 5,868 | 2,866 | 12,932 | 10,391 | 2,541 | 565 | 177 | 5 760 | 901 | 40,346 | 534 | |
| 54 | 28 | ..... | 20 | 17 | 3 | 40 | 36 | 4 | 27 | 2 | ..... | 19 | 805 | 40 | 1 |
| 396 | 11 | 178 | 200 | 200 | ..... | 396 | 396 | ..... | 5 | 5 | 28 | 42 | 707 | 15 | 2 |
| 140 | 7 | ..... | 44 | 26 | 18 | 124 | 124 | ..... | 6 | 3 | 4 | ..... | 1,200 | 137 | 3 |
| 26 | ..... | 5 | 8 | 8 | ..... | 19 | 19 | ..... | 4 | 1 | ..... | ..... | 200 | 9 | 4 |
| 22 | ..... | 6 | 8 | 8 | ..... | 20 | 20 | ..... | ..... | 1 | ..... | 3 | 15 | ..... | 5 |
| 22 | ..... | ..... | 11 | 11 | ..... | 23 | 23 | ..... | ..... | 1 | 3 | ..... | 100 | ..... | 6 |
| 6 | 2 | ..... | 4 | 4 | ..... | 6 | 6 | ..... | 2 | ..... | ..... | ..... | ..... | ..... | 7 |
| 11 | ..... | ..... | 2 | 1 | 1 | 2 | 2 | ..... | 6 | 1 | ..... | ..... | 50 | 8 | 8 |
| 112 | 8 | ..... | 38 | 38 | ..... | 112 | 112 | ..... | 2 | 2 | 8 | 3 | 500 | ..... | 9 |
| 463 | 200 | 75 | 311 | 311 | ..... | 495 | 495 | ..... | 32 | 10 | 39 | 59 | 3,716 | ..... | 10 |
| 251 | 25 | 8 | 221 | 221 | ..... | 251 | 251 | ..... | 2 | 3 | 2 | 5 | 260 | ..... | 11 |
| 8 | 5 | ..... | 5 | 5 | ..... | 5 | 5 | ..... | ..... | 1 | ..... | ..... | 50 | ..... | 12 |
| 11 | ..... | 5 | 5 | 5 | ..... | 7 | 7 | ..... | ..... | 1 | ..... | ..... | 50 | ..... | 13 |
| 7 | ..... | ..... | 2 | 2 | ..... | 7 | 7 | ..... | ..... | 1 | 1 | ..... | 15 | ..... | 14 |
| 10 | ..... | ..... | 4 | ..... | 4 | 10 | 10 | ..... | ..... | 1 | ..... | ..... | 25 | ..... | 15 |
| 17 | ..... | 14 | 8 | 8 | ..... | 17 | 17 | ..... | ..... | 1 | ..... | ..... | 12 | ..... | 16 |
| 21 | ..... | ..... | 6 | 6 | ..... | 21 | 21 | ..... | 1 | 1 | 1 | ..... | 100 | ..... | 17 |
| 12 | ..... | ..... | 5 | 5 | ..... | 12 | 12 | ..... | ..... | 1 | ..... | ..... | 30 | ..... | 18 |
| 23 | ..... | ..... | 12 | 2 | 10 | 19 | 19 | ..... | 3 | 1 | ..... | ..... | 60 | ..... | 19 |
| 12 | ..... | ..... | ..... | ..... | ..... | 12 | 12 | ..... | 1 | 1 | ..... | ..... | 20 | ..... | 20 |
| 78 | 1 | ..... | 37 | 16 | 21 | 78 | 78 | ..... | ..... | 2 | ..... | 11 | 41 | ..... | 21 |
| 2 | ..... | ..... | ..... | ..... | ..... | 2 | 2 | ..... | ..... | ..... | ..... | ..... | 15 | ..... | 22 |
| 18 | ..... | ..... | 7 | ..... | 7 | 18 | 18 | ..... | ..... | 1 | ..... | ..... | 30 | ..... | 23 |
| 29 | 4 | ..... | 14 | 14 | ..... | 27 | 27 | ..... | ..... | 1 | ..... | 1 | 155 | 10 | 24 |
| 3 | ..... | ..... | 3 | ..... | 3 | 3 | ..... | 3 | ..... | 1 | 6 | ..... | ..... | ..... | 25 |
| 35 | ..... | ..... | 12 | 10 | 2 | 33 | 33 | ..... | 2 | 1 | ..... | 10 | 350 | ..... | 26 |
| 5 | ..... | ..... | 1 | 1 | ..... | 5 | 5 | ..... | ..... | 1 | ..... | ..... | 50 | ..... | 27 |
| 19 | ..... | ..... | 7 | 7 | ..... | 17 | 17 | ..... | ..... | 2 | ..... | ..... | 50 | 10 | 28 |
| 13 | ..... | ..... | 6 | 6 | ..... | 11 | 11 | ..... | 1 | 1 | ..... | ..... | 40 | ..... | 29 |
| 7 | ..... | ..... | 4 | 4 | ..... | 5 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 30 |
| 12 | ..... | ..... | 2 | 2 | ..... | 9 | 9 | ..... | 2 | ..... | ..... | 5 | 100 | 6 | 31 |
| 30 | ..... | ..... | 12 | 12 | ..... | 29 | 29 | ..... | 1 | 2 | 1 | ..... | 100 | ..... | 32 |
| 56 | ..... | ..... | 27 | 27 | ..... | 56 | 56 | ..... | 3 | 2 | 3 | ..... | 300 | ..... | 33 |
| 40 | ..... | ..... | 14 | 14 | ..... | 38 | 38 | ..... | 2 | 2 | 2 | 12 | 1,000 | ..... | 34 |
| 9 | ..... | ..... | 3 | 3 | ..... | 8 | 8 | ..... | 6 | 1 | ..... | ..... | 110 | 8 | 35 |
| 4 | ..... | ..... | 2 | 2 | ..... | 2 | 2 | ..... | 2 | 1 | ..... | ..... | 15 | 5 | 36 |
| 24 | ..... | ..... | 9 | 9 | ..... | 22 | 22 | ..... | 9 | 2 | ..... | 3 | 150 | ..... | 37 |
| 5 | 4 | ..... | 4 | 4 | ..... | 4 | 4 | ..... | ..... | 1 | ..... | ..... | 25 | 9 | 38 |

[1] Exclusive of 1 steam locomotive.

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | | With fenders. |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. | |
| | | | | | | Closed and open. | Passenger and express. | | | | | | | |
| | NEW YORK—Continued. | | | | | | | | | | | | | |
| 39 | Orange County Traction | 40 | 31 | 14 | 17 | ..... | ..... | 2 | 5 | 1 | 1 | 24 | 16 | 30 |
| 40 | New Paltz and Poughkeepsie | 9 | 5 | 2 | 3 | ..... | ..... | 1 | 2 | ..... | 1 | 7 | 2 | ..... |
| 41 | Interurban | 3,063 | 2,903 | 1,805 | 958 | 140 | ..... | 15 | 46 | 27 | 72 | 2,181 | 882 | 1,200 |
| 42 | Central Crosstown | 117 | 113 | 83 | 30 | ..... | ..... | ..... | ..... | 2 | 2 | ..... | 117 | ..... |
| 43 | Fulton Street Railroad | 9 | 9 | 9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 | ..... |
| 44 | Thirty-fourth Street Crosstown | 52 | 50 | 50 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | 50 | 2 | 50 |
| 45 | Twenty-eighth and Twenty-ninth Street Crosstown. | 14 | 14 | 14 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 14 | ..... |
| 46 | Third Avenue Railroad | 600 | 582 | 320 | 190 | 72 | ..... | ..... | ..... | 6 | 12 | 600 | ..... | 582 |
| 47 | Forty-second Street, Manhattanville and St. Nicholas Avenue. | 128 | 118 | 100 | 18 | ..... | ..... | ..... | ..... | 5 | 5 | ..... | 128 | ..... |
| 48 | Dry Dock, East Broadway and Battery | 203 | 189 | 171 | 18 | ..... | ..... | ..... | 2 | 4 | 8 | ..... | 203 | ..... |
| 49 | Kingsbridge Railway | 4 | 4 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 | ..... | 4 |
| 50 | Southern Boulevard Railroad | [1] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 51 | Yonkers Railroad | 80 | 75 | 34 | 41 | ..... | ..... | ..... | 4 | ..... | 1 | 80 | ..... | 60 |
| 52 | Union Railway | 462 | 450 | 249 | 201 | ..... | ..... | ..... | 1 | 5 | 6 | 462 | ..... | ..... |
| 53 | Tarrytown, White Plains and Mamaroneck | 24 | 13 | 4 | 9 | ..... | ..... | 1 | 7 | 2 | 1 | 24 | ..... | ..... |
| 54 | Westchester Electric Railroad | [1] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 55 | Manhattan Railway (elevated) | [2] 1,331 | 1,290 | 1,268 | 22 | ..... | ..... | ..... | 41 | ..... | ..... | 151 | 1,180 | ..... |
| 56 | Pelham Park Railroad | 11 | 9 | 9 | ..... | ..... | ..... | ..... | 2 | ..... | ..... | ..... | 11 | ..... |
| 57 | City Island Railroad | [1] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 58 | Brooklyn Rapid Transit | [3] 3,504 | 3,285 | 1,681 | 1,383 | 221 | ..... | 17 | 120 | 43 | 39 | 2,941 | 563 | 2,412 |
| 59 | Coney Island and Brooklyn | 581 | 566 | 286 | 280 | ..... | ..... | 1 | 8 | 2 | 4 | 557 | 24 | 557 |
| 60 | Van Brunt Street and Erie Basin | 15 | 15 | 7 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | 15 | ..... | 15 |
| 61 | New York and Queens County | 274 | 253 | 126 | 127 | ..... | ..... | 6 | 6 | 7 | 2 | 244 | 30 | ..... |
| 62 | New York and North Shore | 39 | 35 | 10 | 25 | ..... | ..... | ..... | 3 | ..... | 1 | 38 | 1 | ..... |
| 63 | Staten Island Midland | 70 | 65 | 20 | 45 | ..... | ..... | 1 | 3 | 1 | ..... | 70 | ..... | 65 |
| 64 | Staten Island Electric | 109 | 103 | 33 | 70 | ..... | ..... | ..... | 1 | 2 | 3 | 109 | ..... | 103 |
| 65 | Niagara Gorge Railroad | 32 | 29 | 3 | 26 | ..... | ..... | ..... | 3 | ..... | ..... | 23 | 9 | 32 |
| 66 | Northport Traction | 3 | 2 | ..... | ..... | 2 | ..... | 1 | ..... | ..... | ..... | 3 | ..... | ..... |
| 67 | Ogdensburg Street Railway | 17 | 16 | 4 | 7 | 5 | ..... | ..... | ..... | ..... | 1 | 16 | 1 | ..... |
| 68 | Olean, Rock City and Bradford | 13 | 8 | 3 | 5 | ..... | ..... | 3 | 1 | 1 | ..... | 9 | 4 | ..... |
| 69 | Olean Street Railway | 21 | 18 | 12 | 6 | ..... | ..... | ..... | 2 | 1 | ..... | 19 | 2 | ..... |
| 70 | Oneida Railway | 2 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... |
| 71 | Oneonta, Cooperstown and Richfield Springs | 29 | 14 | 6 | 6 | ..... | 2 | 14 | ..... | 1 | ..... | 16 | 13 | ..... |
| 72 | Westchester Traction | 9 | 9 | 7 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 7 | 2 | ..... |
| 73 | Oswego Traction | 26 | 23 | 10 | 13 | ..... | ..... | ..... | 1 | 1 | 1 | 25 | 1 | 13 |
| 74 | Peekskill Lighting and Railroad | 18 | 16 | 6 | 10 | ..... | ..... | ..... | 1 | 1 | ..... | 18 | ..... | 16 |
| 75 | Penn Yan, Keuka Park and Branchport | 8 | 6 | 2 | 4 | ..... | ..... | 1 | 1 | ..... | ..... | 7 | 1 | ..... |
| 76 | Plattsburg Traction | 11 | 10 | 4 | 6 | ..... | ..... | ..... | ..... | 1 | ..... | 11 | ..... | ..... |
| 77 | New York and Stamford | 35 | 32 | 12 | 20 | ..... | ..... | ..... | 1 | 2 | ..... | 35 | ..... | ..... |
| 78 | Port Jervis Electric, Gas and Railroad | 6 | 6 | 3 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 3 | ..... |
| 79 | Poughkeepsie and Wappingers Falls | 25 | 23 | 14 | 9 | ..... | ..... | ..... | ..... | 1 | 1 | 25 | ..... | ..... |
| 80 | Rochester Railway | 228 | 196 | 147 | 48 | ..... | 1 | 5 | 9 | 15 | 3 | 186 | 42 | 176 |
| 81 | Rochester and Suburban | 18 | 18 | 6 | 12 | ..... | ..... | ..... | ..... | ..... | ..... | 14 | 4 | 14 |
| 82 | Rochester and Sodus Bay | 39 | 19 | 6 | 5 | ..... | 8 | 7 | 11 | 2 | ..... | 26 | 13 | 37 |
| 83 | Rochester, Charlotte and Manitou | 18 | 16 | ..... | 16 | ..... | ..... | ..... | 2 | ..... | ..... | 6 | 12 | ..... |
| 84 | Rome City | 11 | 10 | 5 | 5 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 11 | ..... |
| 85 | Schenectady Railway | 90 | 61 | 43 | 18 | ..... | ..... | 10 | 15 | 4 | ..... | 75 | 15 | 75 |
| 86 | Sea Cliff Incline Cable | 2 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... |
| 87 | Southfield Beach Railroad | [1] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 88 | Syracuse Rapid Transit | 147 | 134 | 88 | 46 | ..... | ..... | ..... | 1 | 11 | 1 | 106 | 41 | 94 |
| 89 | Syracuse and Suburban | 15 | 11 | 9 | 2 | ..... | ..... | 2 | 1 | 1 | ..... | 14 | 1 | 13 |
| 90 | Syracuse, Lakeside and Baldwinsville | 20 | 17 | 8 | 9 | ..... | ..... | 1 | ..... | 2 | ..... | 20 | ..... | 17 |
| 91 | Utica and Mohawk Valley | 160 | 138 | 77 | 61 | ..... | ..... | 2 | 17 | 1 | 2 | 102 | 58 | 96 |
| 92 | Black River Traction | 28 | 21 | 11 | 10 | ..... | ..... | ..... | 6 | ..... | 1 | 24 | 4 | ..... |
| 93 | Elmira and Seneca Lake | 9 | 8 | 6 | 2 | ..... | ..... | ..... | 1 | ..... | ..... | 8 | 1 | ..... |
| 94 | Buffalo, Gardenville and Ebenezer | 10 | 10 | 3 | 7 | ..... | ..... | ..... | ..... | ..... | ..... | 4 | 6 | ..... |
| 95 | Hamburg Railway | 15 | 9 | 8 | 1 | ..... | ..... | 3 | 1 | 2 | ..... | 12 | 3 | ..... |
| 96 | Buffalo and Williamsville | 9 | 5 | 3 | 2 | ..... | ..... | 3 | ..... | 1 | ..... | 9 | ..... | ..... |
| | NORTH CAROLINA. | | | | | | | | | | | | | |
| | Total for state | 131 | 99 | 48 | 48 | 2 | 1 | 25 | 7 | ..... | ..... | 84 | 47 | 10 |
| 1 | Asheville Electric | 7 | 6 | 2 | 2 | 2 | ..... | 1 | ..... | ..... | ..... | 7 | ..... | ..... |
| 2 | Asheville Street Railroad | 28 | 26 | 12 | 14 | ..... | ..... | 1 | 1 | ..... | ..... | 24 | 4 | ..... |
| 3 | Asheville and Craggy Mountain | [4] 30 | 9 | 2 | 6 | ..... | 1 | 19 | 2 | ..... | ..... | 2 | 28 | ..... |
| 4 | Charlotte Railway, Light and Power | 22 | 20 | 12 | 8 | ..... | ..... | ..... | 2 | ..... | ..... | 21 | 1 | ..... |
| 5 | Raleigh Electric | 10 | 10 | 5 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | 8 | 2 | ..... |
| 6 | Consolidated Railways, Light and Power | 13 | 12 | 6 | 6 | ..... | ..... | ..... | 1 | ..... | ..... | 9 | 4 | ..... |
| 7 | Fries Manufacturing and Power | 21 | 16 | 9 | 7 | ..... | ..... | 4 | 1 | ..... | ..... | 13 | 8 | 10 |
| | OHIO. | | | | | | | | | | | | | |
| | Total for state | 4,396 | 3,975 | 2,277 | 1,594 | 34 | 70 | 44 | 275 | 47 | 54 | 3,188 | 1,207 | 2,967 |
| 1 | Ashtabula Rapid Transit | 19 | 17 | 9 | 8 | ..... | ..... | ..... | 1 | 1 | ..... | 19 | ..... | 17 |
| 2 | Pennsylvania and Ohio | 15 | 13 | 6 | 3 | 2 | 2 | ..... | 1 | 1 | ..... | 13 | 2 | 13 |
| 3 | Ohio Central Traction | 16 | 11 | 4 | 7 | ..... | ..... | ..... | 4 | 1 | ..... | 6 | 10 | 4 |
| 4 | Consolidated | 6 | 6 | 2 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | 4 | 2 | ..... |
| 5 | Stark Electric | 11 | 11 | 9 | ..... | ..... | 2 | ..... | ..... | ..... | ..... | 11 | ..... | 6 |
| 6 | Canton-Akron | 73 | 66 | 35 | 26 | ..... | 5 | 2 | 3 | 2 | ..... | 63 | 10 | 42 |
| 7 | Chillicothe Electric Railroad, Light and Power | 10 | 8 | 4 | 4 | ..... | ..... | ..... | 1 | 1 | ..... | 9 | 1 | ..... |
| 8 | Cincinnati Traction | 1,105 | 1,063 | 545 | 518 | ..... | ..... | 2 | 28 | ..... | 12 | 702 | 403 | 690 |
| 9 | Price Hill Incline Plane | 4 | 2 | 2 | ..... | ..... | ..... | 2 | ..... | ..... | ..... | ..... | 4 | ..... |
| 10 | Mill Creek Valley | 53 | 50 | 38 | 12 | ..... | ..... | ..... | 3 | ..... | ..... | 53 | ..... | 46 |
| 11 | Cincinnati, Dayton and Toledo | 73 | 52 | 41 | 9 | ..... | 2 | 2 | 19 | ..... | ..... | 49 | 24 | 45 |
| 12 | Cincinnati, Lawrenceburg and Aurora | 13 | 12 | 12 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 13 | ..... | 13 |

[1] Cars rented.

[2] Exclusive of 292 steam locomotives.

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | | | | Lamps for buildings, shops, car houses, etc. | | | |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | Stations. | Car houses. | Horses. | Arc. | Incandescent. | Miles of exclusive telephone lines. | Number. |
| 40 | | | 14 | 14 | | 40 | 40 | | 5 | 2 | | | 150 | 11 | 39 |
| 9 | 2 | | 4 | 2 | 2 | 9 | 9 | | 3 | 2 | | | 30 | 9 | 40 |
| 3,063 | | | 1,983 | 1,431 | 552 | 2,750 | 1,868 | 882 | | 15 | 3,676 | 150 | 5,000 | | 41 |
| 117 | | | 83 | | 83 | 115 | | 115 | | 2 | 534 | | 150 | | 42 |
| 9 | | | 9 | | 9 | 9 | | 9 | | | 44 | | | | 43 |
| 52 | | | 50 | 50 | | 50 | 50 | | | | | | | | 44 |
| 14 | | | 14 | | 14 | 14 | | 14 | | | 232 | | | | 45 |
| 600 | | | 392 | 392 | | 582 | 582 | | | 3 | 26 | 30 | 800 | | 46 |
| 128 | | | 100 | | 100 | 118 | | 118 | | 4 | 89 | 30 | 1,000 | | 47 |
| 203 | | | 171 | | 171 | 201 | | 201 | | 3 | 842 | 15 | 100 | | 48 |
| 4 | | | 4 | 4 | | 4 | 4 | | | | | | | | 49 |
| | | | | | | | | | | | | | | | 50 |
| 80 | | | 34 | 34 | | 75 | 75 | | 3 | 1 | 1 | | 300 | | 51 |
| 462 | | | 249 | 249 | | 456 | 456 | | 4 | 3 | 13 | 50 | 500 | | 52 |
| 24 | | | 4 | 4 | | 14 | 14 | | | 1 | | | 250 | | 53 |
| | | | | | | | | | 3 | 2 | 3 | 15 | 250 | | 54 |
| 1,331 | 1,331 | | 1,268 | 332 | 936 | 1,290 | 354 | 936 | 199 | 4 | | 200 | 8,000 | [3]38 | 55 |
| 11 | | | 9 | | 9 | 9 | | 9 | | 1 | 22 | | | | 56 |
| | | | | | | | | | | | [4] | | | | 57 |
| 3,504 | 286 | 847 | 2,215 | 1,381 | 834 | 3,198 | 2,966 | 212 | 151 | 17 | 82 | 150 | 9,000 | 29 | 58 |
| 581 | | | 291 | 291 | | 576 | 576 | | | 7 | 22 | 20 | 350 | | 59 |
| 15 | | | 7 | 7 | | 15 | 15 | | | 2 | | | 30 | | 60 |
| 274 | | | 126 | 126 | | 261 | 261 | | 2 | 3 | 12 | | 1,000 | 36 | 61 |
| 39 | | | 10 | 10 | | 36 | 36 | | 3 | 1 | | | 250 | 9 | 62 |
| 70 | | | 20 | 20 | | 67 | 67 | | | 1 | 2 | | 100 | | 63 |
| 109 | | | 33 | 33 | | 103 | 103 | | 1 | 2 | 3 | 3 | 54 | | 64 |
| 32 | 29 | | 3 | 3 | | 29 | 29 | | | 1 | | | 10 | | 65 |
| 3 | | | 2 | 2 | | 3 | 3 | | 1 | | | | 30 | 5 | 66 |
| 17 | | | 9 | 9 | | 16 | 16 | | | 1 | | | 20 | | 67 |
| 13 | 6 | | 4 | 4 | | 11 | 11 | | 11 | 2 | | | 65 | 20 | 68 |
| 21 | | | 12 | 12 | | 19 | 19 | | | 1 | 3 | | 50 | | 69 |
| 2 | | | 2 | | 2 | 2 | | 2 | | 1 | 8 | | | | 70 |
| 29 | 17 | | 8 | 6 | 2 | 16 | 16 | | 8 | 1 | | | 150 | 27 | 71 |
| 9 | | | 7 | | 7 | 9 | 9 | | | | | | 50 | | 72 |
| 26 | | | 9 | 9 | | 22 | 22 | | 2 | 2 | 1 | | 25 | | 73 |
| 18 | | | 6 | 6 | | 17 | 17 | | | 1 | | | 25 | | 74 |
| 8 | | | 2 | 2 | | 7 | 7 | | 4 | 1 | | | 50 | 8 | 75 |
| 11 | | | 4 | 4 | | 10 | 10 | | 1 | 1 | | | 50 | | 76 |
| 35 | 3 | | 12 | 12 | | 35 | 35 | | 1 | 2 | | | 135 | | 77 |
| 6 | | | 3 | 3 | | 6 | 6 | | | 1 | | | 30 | | 78 |
| 25 | | | 23 | 23 | | 25 | 25 | | | 1 | 4 | | | | 79 |
| 228 | 1 | | 166 | 115 | 51 | 219 | 195 | 24 | 1 | 3 | 21 | 12 | 500 | | 80 |
| 18 | 14 | | 3 | 2 | 1 | 18 | 18 | | 2 | 2 | | 4 | 12 | | 81 |
| 37 | | | 28 | 28 | | 37 | 37 | | 24 | 3 | | | 80 | 39 | 82 |
| 18 | | | | | | 18 | 18 | | 1 | 1 | | | 50 | 7 | 83 |
| 7 | 3 | | 5 | | 5 | 10 | | 10 | 1 | 1 | | | 40 | | 84 |
| 90 | 25 | | 43 | 43 | | 90 | 90 | | 1 | 1 | 1 | 39 | 20 | 8 | 85 |
| | | | | | | | | | 2 | | | | | | 86 |
| | | | | | | | | | 2 | 1 | | | 20 | | 87 |
| 147 | 14 | | 88 | 88 | | 134 | 134 | | | 2 | 9 | | 500 | 2 | 88 |
| 13 | | | 10 | 10 | | 12 | 12 | | 1 | 1 | 2 | | 78 | 12 | 89 |
| 17 | 5 | 12 | 8 | 8 | | 17 | 17 | | 1 | 1 | | 5 | 40 | | 90 |
| 160 | 31 | | 77 | 58 | 19 | 138 | 136 | 2 | 2 | 5 | 10 | | 211 | 1 | 91 |
| 24 | | | 12 | 12 | | 22 | 22 | | | 1 | | | 180 | | 92 |
| 9 | 4 | | 6 | 6 | | 8 | 8 | | 1 | 1 | | 5 | 50 | 16 | 93 |
| 10 | | | 3 | 3 | | 10 | 10 | | | 1 | | | 35 | | 94 |
| 11 | 4 | | 8 | 8 | | 9 | 9 | | 5 | 1 | | | 60 | | 95 |
| 9 | | | 3 | 3 | | 6 | 6 | | | 1 | | | 20 | | 96 |
| 130 | 16 | 1 | 48 | 48 | | 100 | 100 | | 9 | 8 | 3 | 9 | 460 | 15 | |
| 7 | | 1 | 4 | 4 | | 7 | 7 | | 1 | 1 | 3 | | 150 | | 1 |
| 28 | | | 12 | 12 | | 28 | 28 | | 1 | 1 | | | 60 | | 2 |
| 30 | 15 | | | | | 2 | 2 | | 2 | 1 | | | 41 | 2 | 3 |
| 22 | | | 12 | 12 | | 21 | 21 | | | 1 | | 1 | 85 | | 4 |
| 10 | 1 | | 5 | 5 | | 10 | 10 | | | 1 | | 2 | 40 | | 5 |
| 12 | | | 6 | 6 | | 12 | 12 | | 1 | 1 | | | 84 | | 6 |
| 21 | | | 9 | 9 | | 20 | 20 | | 4 | 2 | | 6 | 50 | 13 | 7 |
| 4,330 | 145 | 147 | 2,421 | 1,381 | 1,040 | 4,100 | 4,100 | | 248 | 138 | 187 | 470 | 17,207 | 1,257 | |
| 17 | | | 9 | 9 | | 17 | 17 | | | 1 | | | 50 | | 1 |
| 15 | 7 | | 14 | 13 | 1 | 14 | 14 | | 2 | 3 | | | 100 | 24 | 2 |
| 16 | | | 4 | 4 | | 12 | 12 | | 3 | 1 | | | 50 | 12 | 3 |
| 6 | | | 2 | 2 | | 6 | 6 | | | 1 | | | 50 | | 4 |
| 11 | 6 | | 11 | | 11 | 11 | 11 | | 2 | 1 | 28 | 4 | 82 | 26 | 5 |
| 73 | 8 | | 35 | 27 | 8 | 70 | 70 | | 2 | 3 | 2 | 10 | 300 | 32 | 6 |
| 10 | | | 4 | 4 | | 9 | 9 | | | 1 | 1 | | 25 | | 7 |
| 1,105 | 50 | | 545 | 495 | 50 | 1,063 | 1,063 | | | 11 | 60 | 112 | 550 | | 8 |
| | | | 2 | 2 | | 2 | 2 | | 2 | 2 | | 10 | 50 | | 9 |
| 58 | 46 | | 50 | 46 | 4 | 50 | 50 | | 4 | 2 | 2 | 5 | 250 | 3 | 10 |
| 80 | 1 | 22 | 44 | 44 | | 44 | 44 | | 16 | 4 | | 35 | 1,615 | 144 | 11 |
| 13 | | 13 | 12 | 12 | | 12 | 12 | | 2 | 1 | | | 200 | 33 | 12 |

[3] Telegraph lines. [4] Horses rented. [5] Exclusive of 121 steam locomotives. [6] Exclusive of 1 electric engine and 1 steam locomotive.

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | | With fenders. |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. | |
| | | | | | | Closed and open. | Passenger and express. | | | | | | | |
| | OHIO—Continued. | | | | | | | | | | | | | |
| 13 | Cleveland Electric Railway | 647 | 584 | 366 | 218 | ..... | ..... | ..... | 46 | 4 | 13 | 523 | 124 | 631 |
| 14 | Cleveland City Railway | 294 | 285 | 227 | 58 | ..... | ..... | ..... | 2 | ..... | 7 | 287 | 7 | 285 |
| 15 | Cleveland, Elyria and Western | 39 | 27 | 21 | ..... | ..... | 6 | ..... | 9 | 2 | 1 | 30 | 9 | 33 |
| 16 | Eastern Ohio Traction | 36 | 25 | 20 | ..... | ..... | 5 | 4 | 2 | 5 | ..... | 36 | ..... | 31 |
| 17 | Cleveland, Painesville and Eastern | 31 | 29 | 22 | 2 | ..... | 5 | ..... | 1 | ..... | 1 | 31 | ..... | 29 |
| 18 | Northern Ohio Traction | 128 | 115 | 56 | 56 | ..... | 3 | ..... | 10 | ..... | 3 | 64 | 64 | 59 |
| 19 | Columbus Railway | 314 | 275 | 152 | 123 | ..... | ..... | 1 | 33 | 5 | ..... | 232 | 82 | 267 |
| 20 | Columbus, London and Springfield | 10 | 10 | 10 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 10 | ..... | 10 |
| 21 | Columbus, Buckeye Lake and Newark | 17 | 14 | 5 | 5 | ..... | 4 | 1 | 1 | 1 | ..... | 15 | 2 | 15 |
| 22 | City Railway | 155 | 152 | 62 | 90 | ..... | ..... | ..... | ..... | 3 | ..... | 103 | 52 | 100 |
| 23 | Peoples Railway | 116 | 114 | 51 | 63 | ..... | ..... | ..... | 1 | ..... | 1 | 42 | 74 | 40 |
| 24 | Oakwood Street | 24 | 24 | ..... | ..... | 24 | ..... | ..... | ..... | ..... | ..... | 20 | 4 | 20 |
| 25 | Dayton and Western | 10 | 6 | 4 | ..... | ..... | 2 | 2 | 1 | 1 | ..... | 8 | 2 | 8 |
| 26 | Dayton and Northern | 11 | 8 | 8 | ..... | ..... | ..... | 1 | 2 | ..... | ..... | 9 | 2 | 9 |
| 27 | Dayton, Springfield and Urbana | 21 | 18 | 14 | 4 | ..... | ..... | 2 | ..... | 1 | ..... | 21 | ..... | 20 |
| 28 | Dayton and Troy | 29 | 19 | 4 | 6 | 1 | 8 | 2 | 8 | ..... | ..... | 18 | 11 | 15 |
| 29 | Dayton and Xenia | 21 | 18 | 10 | 5 | 3 | ..... | ..... | 1 | 2 | ..... | 16 | 5 | 16 |
| 30 | Peoples Gas and Electric | 5 | 4 | 2 | 2 | ..... | ..... | ..... | 1 | ..... | ..... | 2 | 3 | 2 |
| 31 | Delaware Electric Railway | 13 | 13 | 7 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | 13 | ..... | 13 |
| 32 | United Electric | 5 | 5 | 3 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| 33 | East Liverpool Railway | 31 | 28 | 18 | 10 | ..... | ..... | 1 | 2 | ..... | ..... | 31 | ..... | 5 |
| 34 | Lancaster Traction | 14 | 12 | 7 | 5 | ..... | ..... | ..... | 1 | ..... | 1 | 12 | 2 | ..... |
| 35 | Lima Railway and Light | 28 | 27 | 15 | 12 | ..... | ..... | ..... | ..... | ..... | 1 | 24 | 4 | 23 |
| 36 | Western Ohio Railway | 25 | 19 | 16 | ..... | ..... | 3 | 4 | 2 | ..... | ..... | 25 | ..... | 19 |
| 37 | Lorain Street Railway | 25 | 14 | 14 | ..... | ..... | ..... | 1 | 9 | 1 | ..... | 20 | 5 | 17 |
| 38 | Mansfield Railway, Light and Power | 32 | 30 | 14 | 13 | ..... | 3 | 1 | ..... | 1 | ..... | 27 | 5 | 31 |
| 39 | Marion Street Railway | 11 | 10 | 7 | 3 | ..... | ..... | ..... | ..... | 1 | ..... | 10 | 1 | ..... |
| 40 | Mt. Vernon Electric Railway | 11 | 11 | 2 | 9 | ..... | ..... | ..... | ..... | ..... | ..... | 4 | 7 | ..... |
| 41 | Newark and Granville | 20 | 17 | 7 | 10 | ..... | ..... | 1 | 2 | ..... | ..... | 11 | 9 | ..... |
| 42 | Tuscarawas Traction | 25 | 22 | 15 | 6 | ..... | 1 | ..... | 3 | ..... | ..... | 20 | 5 | ..... |
| 43 | Ohio River Railway and Power | 11 | 11 | 3 | 6 | ..... | 2 | ..... | ..... | ..... | ..... | 11 | ..... | ..... |
| 44 | Portsmouth Street Railroad | 21 | 19 | 11 | 8 | ..... | ..... | ..... | 1 | 1 | ..... | 11 | 10 | ..... |
| 45 | Salem Electric Railway | 6 | 6 | 4 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| 46 | Springfield Railway | 51 | 49 | 36 | 13 | ..... | ..... | ..... | 1 | ..... | 1 | 41 | 10 | 36 |
| 47 | Springfield and Xenia | 8 | 5 | 3 | ..... | ..... | 2 | 1 | 2 | ..... | ..... | 6 | 2 | 6 |
| 48 | Steubenville and Pleasant Heights | 6 | 6 | 2 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| 49 | Steubenville Traction and Light | 25 | 24 | 11 | 12 | ..... | 1 | ..... | ..... | ..... | 1 | 25 | ..... | ..... |
| 50 | Electric Railway and Power | 14 | 13 | 3 | 10 | ..... | ..... | ..... | ..... | 1 | ..... | 8 | 6 | ..... |
| 51 | Tiffin, Fostoria and Eastern | 16 | 13 | 6 | 4 | 1 | 2 | ..... | 2 | 1 | ..... | 13 | 3 | ..... |
| 52 | Toledo Railways and Light | 306 | 288 | 132 | 151 | ..... | ..... | ..... | 8 | 8 | 7 | 155 | 151 | 132 |
| 53 | Toledo, Bowling Green and Southern | 39 | 32 | 26 | 6 | ..... | ..... | 3 | 3 | ..... | 1 | 39 | ..... | 32 |
| 54 | Toledo, Fostoria and Findlay | 10 | 9 | 4 | 3 | ..... | 2 | ..... | 1 | ..... | ..... | 8 | 2 | 6 |
| 55 | Toledo and Western | 54 | 15 | 9 | 3 | ..... | 3 | 3 | 34 | 1 | 1 | 19 | 35 | 15 |
| 56 | Lake Shore | 81 | 62 | 54 | 5 | ..... | 3 | 3 | 15 | ..... | 1 | 61 | 20 | 40 |
| 57 | Toledo and Maumee Valley | 19 | 16 | 8 | 8 | ..... | ..... | 1 | 2 | ..... | ..... | 19 | ..... | 17 |
| 58 | Wellston and Jackson Belt | 10 | 10 | 10 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 | 5 | 10 |
| 59 | Worthington, Clintonville and Columbus | 5 | 4 | 4 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 5 | ..... | ..... |
| 60 | Youngstown Park and Falls | 21 | 20 | 6 | 14 | ..... | ..... | ..... | 1 | ..... | ..... | 11 | 10 | 7 |
| 61 | Youngstown-Sharon Railway and Light | 47 | 43 | 23 | 16 | ..... | 4 | 1 | 2 | 1 | ..... | 34 | 13 | 20 |
| 62 | Mahoning Valley | 66 | 56 | 40 | 14 | 2 | ..... | 3 | 4 | 1 | 2 | 61 | 5 | 59 |
| 63 | Zanesville Electric Railway | 33 | 33 | 16 | 17 | ..... | ..... | ..... | ..... | ..... | ..... | 33 | ..... | 33 |
| | OREGON. | | | | | | | | | | | | | |
| | Total for state | 279 | 250 | 150 | 77 | 23 | ..... | 5 | 19 | 1 | 4 | 200 | 79 | 16 |
| 1 | Astoria Electric | 5 | 5 | 4 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 5 | ..... | ..... |
| 2 | Portland Railway | 103 | 95 | 39 | 37 | 19 | ..... | 2 | 4 | ..... | 2 | 67 | 36 | ..... |
| 3 | City and Suburban | 118 | 105 | 78 | 24 | 3 | ..... | ..... | 11 | ..... | 2 | 97 | 21 | ..... |
| 4 | Portland City and Oregon | 31 | 26 | 16 | 10 | ..... | ..... | 2 | 2 | 1 | ..... | 16 | 15 | 16 |
| 5 | Salem Light, Power and Traction | 20 | 18 | 12 | 5 | 1 | ..... | ..... | 2 | ..... | ..... | 15 | 5 | ..... |
| 6 | Union Street and Suburban | [1]2 | 1 | 1 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 2 | ..... |
| | PENNSYLVANIA. | | | | | | | | | | | | | |
| | Total for state | 7,058 | 6,420 | 3,302 | 2,746 | 346 | 26 | 51 | 285 | 147 | 155 | 6,450 | 608 | 5,693 |
| 1 | Lehigh Valley Traction | 187 | 168 | 118 | 50 | ..... | ..... | ..... | 7 | 10 | 2 | 124 | 63 | 145 |
| 2 | Philadelphia and Lehigh Valley | 36 | 32 | 22 | 8 | 2 | ..... | ..... | 2 | 2 | ..... | 31 | 5 | 19 |
| 3 | Allentown and Kutztown Traction | 31 | 26 | 4 | 19 | 3 | ..... | 1 | 3 | 1 | ..... | 25 | 6 | 25 |
| 4 | Altoona and Logan Valley | 77 | 73 | 40 | 33 | ..... | ..... | ..... | 1 | 1 | 2 | 55 | 22 | 73 |
| 5 | Bangor and East Bangor | 1 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 |
| 6 | Beaver Valley Traction | 41 | 38 | 25 | 13 | ..... | ..... | 1 | 1 | ..... | 1 | 37 | 4 | 39 |
| 7 | Riverview Electric Street Railway | 3 | 3 | 1 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 3 |
| 8 | Patterson Heights Street Railway | 1 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | ..... |
| 9 | Columbia and Montour | 13 | 12 | 8 | 4 | ..... | ..... | ..... | 1 | ..... | ..... | 10 | 3 | ..... |
| 10 | Bradford Electric Street Railway | 15 | 14 | 6 | 8 | ..... | ..... | ..... | ..... | 1 | ..... | 12 | 3 | 14 |
| 11 | Butler Passenger Railway | 12 | 11 | 5 | 3 | 3 | ..... | ..... | 1 | ..... | ..... | 12 | ..... | ..... |
| 12 | Carlisle and Mt. Holly | 13 | 10 | 3 | 7 | ..... | ..... | ..... | 3 | ..... | ..... | 8 | 5 | ..... |
| 13 | Cumberland Valley Traction | 14 | 12 | 6 | 6 | ..... | ..... | ..... | 2 | ..... | ..... | 8 | 6 | 1 |
| 14 | Chester Traction | 84 | 76 | 36 | 40 | ..... | ..... | ..... | 4 | 1 | 3 | 84 | ..... | 76 |
| 15 | Media, Middletown, Aston and Chester | 21 | 17 | 13 | 4 | ..... | ..... | ..... | 3 | 1 | ..... | 19 | 2 | 4 |
| 16 | Philadelphia and Chester Railway | ([2]) | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 17 | Connellsville Suburban | 7 | 7 | 4 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 7 | ..... | ..... |
| 18 | Newtown Electric Street Railway | 17 | 14 | 11 | 3 | ..... | ..... | ..... | 3 | ..... | ..... | 14 | 3 | 14 |
| 19 | Doylestown and Easton | 6 | 6 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | ..... | ..... |
| 20 | Doylestown and Willow Grove | 13 | 12 | 7 | 5 | ..... | ..... | ..... | 1 | ..... | ..... | 11 | 2 | ..... |
| 21 | Dubois Traction | 8 | 8 | 4 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | 7 | 1 | ..... |
| 22 | Easton and Nazareth | 14 | 12 | 8 | 4 | ..... | ..... | ..... | 1 | 1 | ..... | 12 | 2 | 12 |

[1] Exclusive of 1 steam locomotive.

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | Stations. | Car houses. | Horses. | Lamps for buildings, shops, car houses, etc. | | Miles of exclusive telephone lines. | Number. |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | | | | Arc. | Incandescent. | | |
| 647 | ..... | 13 | 368 | 2 | 366 | 628 | 628 | ..... | 5 | 9 | 16 | 100 | 2,960 | 17 | 13 |
| 294 | ..... | ..... | 227 | ..... | 227 | 285 | 285 | ..... | 7 | 7 | 25 | 6 | 600 | ..... | 14 |
| 33 | 33 | ..... | 33 | 33 | ..... | 33 | 33 | ..... | 9 | 3 | ..... | ..... | 300 | 62 | 15 |
| 31 | 31 | ..... | 25 | 9 | 16 | 31 | 31 | ..... | 6 | 2 | ..... | ..... | 1,000 | 90 | 16 |
| 31 | ..... | 31 | 27 | 27 | ..... | 30 | 30 | ..... | 2 | 3 | ..... | 10 | 240 | 28 | 17 |
| 128 | 1 | 17 | 59 | 27 | 32 | 128 | 128 | ..... | 2 | 4 | ..... | 2 | 500 | 35 | 18 |
| 307 | 6 | 1 | 152 | 152 | ..... | 285 | 285 | ..... | ..... | 5 | 4 | ..... | 1,700 | ..... | 19 |
| 10 | 10 | ..... | 10 | 10 | ..... | 10 | 10 | ..... | 17 | 1 | ..... | ..... | 50 | 65 | 20 |
| 17 | 14 | ..... | 9 | 9 | ..... | 17 | 17 | ..... | 6 | 2 | ..... | 18 | 350 | 41 | 21 |
| 152 | ..... | ..... | 62 | 62 | ..... | 152 | 152 | ..... | ..... | 3 | 3 | 5 | 240 | ..... | 22 |
| 116 | ..... | ..... | 51 | 51 | ..... | 115 | 115 | ..... | ..... | 3 | 3 | 20 | 200 | ..... | 23 |
| 24 | ..... | ..... | 24 | 24 | ..... | 24 | 24 | ..... | ..... | 1 | 3 | ..... | 150 | ..... | 24 |
| 10 | 8 | ..... | 8 | 8 | ..... | 8 | 8 | ..... | 5 | 1 | ..... | 2 | 150 | 25 | 25 |
| 9 | 9 | ..... | 9 | 9 | ..... | 9 | 9 | ..... | 14 | 1 | ..... | ..... | 410 | 41 | 26 |
| 21 | 8 | 9 | 16 | 16 | ..... | 21 | 21 | ..... | 10 | 1 | ..... | ..... | 107 | 42 | 27 |
| 25 | 15 | ..... | 15 | 10 | 5 | 22 | 22 | ..... | 8 | 3 | ..... | 6 | 350 | 3[illegible] | [illegible] |
| 21 | 9 | ..... | 11 | 11 | ..... | 20 | 20 | ..... | 16 | 2 | ..... | ..... | 400 | 50 | 29 |
| 4 | ..... | ..... | 2 | 2 | ..... | 4 | 4 | ..... | 1 | 1 | ..... | ..... | 40 | ..... | 30 |
| 13 | ..... | ..... | 7 | 7 | ..... | 13 | 13 | ..... | 3 | 1 | ..... | ..... | 100 | 2 | 31 |
| 5 | ..... | ..... | 4 | 3 | 1 | 5 | 5 | ..... | ..... | 1 | ..... | ..... | 50 | ..... | 32 |
| 31 | ..... | 3 | 18 | 17 | 1 | 28 | 28 | ..... | ..... | 2 | ..... | 8 | 75 | ..... | 33 |
| 14 | ..... | ..... | 7 | 7 | ..... | 12 | 12 | ..... | ..... | 2 | ..... | ..... | 50 | ..... | 34 |
| 28 | ..... | ..... | 15 | 15 | ..... | 28 | 28 | ..... | 1 | 1 | 1 | ..... | 50 | 1 | 35 |
| 25 | 21 | ..... | 20 | 9 | 11 | 21 | 21 | ..... | 4 | 1 | ..... | 18 | 78 | 79 | 36 |
| 21 | 14 | ..... | 19 | 14 | 5 | 25 | 25 | ..... | 1 | 3 | ..... | 10 | 120 | 10 | 37 |
| 32 | ..... | ..... | 17 | 6 | 11 | 32 | 32 | ..... | 2 | 1 | ..... | ..... | 125 | 12 | 38 |
| 11 | ..... | ..... | 7 | ..... | 7 | 10 | 10 | ..... | ..... | 1 | ..... | ..... | 15 | ..... | 39 |
| 11 | ..... | ..... | 2 | 2 | ..... | 11 | 11 | ..... | 1 | 1 | 1 | 10 | 200 | ..... | 40 |
| 20 | ..... | ..... | 7 | ..... | 7 | 20 | 20 | ..... | ..... | 2 | 2 | ..... | 50 | ..... | 41 |
| 25 | ..... | ..... | 15 | 14 | 1 | 15 | 15 | ..... | 2 | 2 | ..... | ..... | 75 | 2 | 42 |
| 11 | ..... | ..... | 5 | 5 | ..... | 11 | 11 | ..... | 1 | 1 | ..... | ..... | 60 | ..... | 43 |
| 21 | ..... | ..... | 11 | 9 | 2 | 20 | 20 | ..... | 1 | 3 | 1 | ..... | 100 | ..... | 44 |
| 6 | ..... | ..... | 4 | ..... | 4 | 6 | 6 | ..... | ..... | 1 | ..... | ..... | 6 | ..... | 45 |
| 51 | ..... | ..... | 37 | 37 | ..... | 50 | 50 | ..... | 1 | 2 | 3 | 3 | 200 | 2 | 46 |
| 8 | 6 | ..... | 5 | 5 | ..... | 6 | 6 | ..... | 9 | 1 | ..... | ..... | 150 | 19 | 47 |
| 6 | ..... | ..... | 2 | 2 | ..... | 6 | 6 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 48 |
| 25 | 7 | ..... | 12 | 11 | 1 | 25 | 25 | ..... | 1 | 2 | 2 | 4 | 100 | 10 | 49 |
| 14 | ..... | ..... | 8 | ..... | 8 | 13 | 13 | ..... | ..... | 1 | ..... | ..... | 20 | ..... | 50 |
| 16 | ..... | 2 | 6 | 3 | 3 | 14 | 14 | ..... | 2 | 3 | ..... | ..... | 85 | 15 | 51 |
| 306 | ..... | ..... | 132 | ..... | 132 | 283 | 283 | ..... | ..... | 3 | 21 | 40 | 1,000 | ..... | 52 |
| 39 | 14 | ..... | 26 | 14 | 12 | 32 | 32 | ..... | 2 | 2 | 5 | ..... | 100 | 30 | 53 |
| 9 | 9 | ..... | 6 | 6 | ..... | 9 | 9 | ..... | ..... | 1 | ..... | 12 | 175 | 16 | 54 |
| 54 | 54 | ..... | 15 | ..... | 15 | 15 | 15 | ..... | 17 | 1 | ..... | ..... | 54 | 56 | 55 |
| 81 | 25 | 12 | 63 | 22 | 41 | 66 | 66 | ..... | 20 | 4 | ..... | 8 | 175 | 131 | 56 |
| 17 | 1 | ..... | 8 | ..... | 8 | 19 | 19 | ..... | 4 | 1 | ..... | ..... | 55 | ..... | 57 |
| 10 | 10 | ..... | 10 | 10 | ..... | 10 | 10 | ..... | 24 | 2 | ..... | ..... | ..... | ..... | 58 |
| 5 | ..... | ..... | 4 | ..... | 4 | 4 | 4 | ..... | ..... | 1 | ..... | ..... | 20 | ..... | 59 |
| 20 | ..... | ..... | 6 | ..... | 6 | 20 | 20 | ..... | ..... | ..... | ..... | ..... | 85 | 2 | 60 |
| 47 | 4 | 24 | 27 | 27 | ..... | 47 | 47 | ..... | 5 | 4 | ..... | 12 | 255 | 21 | 61 |
| 66 | 18 | ..... | 40 | ..... | 40 | 59 | 59 | ..... | 5 | 2 | 2 | ..... | 450 | 24 | 62 |
| 33 | ..... | ..... | 16 | 16 | ..... | 33 | 33 | ..... | 1 | 1 | 2 | ..... | 60 | ..... | 63 |
| 277 | 9 | 9 | 25 | 23 | 2 | 253 | 237 | 16 | 14 | 11 | 14 | 1 | 1,120 | 39 | |
| 5 | ..... | ..... | ..... | ..... | ..... | 5 | 5 | ..... | 1 | 1 | ..... | ..... | 100 | ..... | 1 |
| 103 | 1 | 9 | 7 | 7 | ..... | 95 | 81 | 14 | 1 | 3 | ..... | 1 | 80 | ..... | 2 |
| 118 | ..... | ..... | ..... | ..... | ..... | 107 | 107 | ..... | 5 | 4 | ..... | ..... | 650 | 20 | 3 |
| 31 | 6 | ..... | 17 | 16 | 1 | 27 | 26 | 1 | 1 | 1 | 14 | ..... | 200 | 16 | 4 |
| 18 | ..... | ..... | ..... | ..... | ..... | 18 | 18 | ..... | 5 | 2 | ..... | ..... | 90 | ..... | 5 |
| 2 | 2 | ..... | 1 | ..... | 1 | 1 | ..... | 1 | 1 | ..... | ..... | ..... | ..... | 3 | 6 |
| 6,972 | 1,064 | 532 | 2,299 | 1,226 | 1,073 | 6,886 | 6,860 | 26 | 145 | 173 | 286 | 631 | 13,110 | 245 | |
| 185 | 60 | ..... | 119 | 27 | 92 | 185 | 185 | ..... | ..... | 3 | 4 | 82 | 1,846 | ..... | 1 |
| 36 | 15 | ..... | 24 | 3 | 21 | 36 | 36 | ..... | 2 | 4 | 2 | 11 | 260 | ..... | 2 |
| 27 | ..... | ..... | 7 | 1 | 6 | 27 | 27 | ..... | 1 | 1 | ..... | 50 | 400 | 4 | 3 |
| 73 | 12 | ..... | 40 | 40 | ..... | 77 | 77 | ..... | 2 | 2 | 3 | 20 | 200 | ..... | 4 |
| 1 | ..... | ..... | 1 | ..... | 1 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 |
| 39 | ..... | 8 | 25 | 25 | ..... | 39 | 39 | ..... | ..... | 1 | ..... | ..... | 200 | ..... | 6 |
| 3 | ..... | 2 | 1 | ..... | 1 | 3 | 3 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 7 |
| 1 | ..... | ..... | ..... | ..... | ..... | 1 | 1 | ..... | 2 | 1 | ..... | ..... | 6 | ..... | 8 |
| 13 | ..... | ..... | 8 | 8 | ..... | 12 | 12 | ..... | 2 | 1 | ..... | ..... | 30 | ..... | 9 |
| 15 | ..... | ..... | 7 | 7 | ..... | 15 | 15 | ..... | 2 | 1 | ..... | ..... | 5 | ..... | 10 |
| 12 | 2 | ..... | 8 | 8 | ..... | 11 | 11 | ..... | ..... | 1 | ..... | ..... | 40 | ..... | 11 |
| 13 | 2 | ..... | 3 | 3 | ..... | 10 | 10 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 12 |
| 14 | ..... | ..... | 6 | ..... | 6 | 12 | 12 | ..... | ..... | 1 | ..... | ..... | 35 | ..... | 13 |
| 84 | 34 | ..... | 37 | 36 | 1 | 83 | 83 | ..... | 4 | 2 | 4 | 15 | 70 | 2 | 14 |
| 20 | ..... | ..... | 13 | 13 | ..... | 18 | 18 | ..... | 3 | 2 | ..... | ..... | 306 | 11 | 15 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 16 |
| 7 | ..... | ..... | 4 | ..... | 4 | 7 | 7 | ..... | ..... | 1 | ..... | ..... | 13 | ..... | 17 |
| 17 | 1 | ..... | 11 | ..... | 11 | 14 | 14 | ..... | 1 | 2 | ..... | ..... | 45 | ..... | 18 |
| 6 | 2 | ..... | 6 | 6 | ..... | 6 | 6 | ..... | ..... | 1 | ..... | ..... | 10 | ..... | 19 |
| 11 | 2 | ..... | 5 | 5 | ..... | 13 | 13 | ..... | ..... | 1 | ..... | ..... | 100 | 12 | 20 |
| 8 | ..... | ..... | 3 | 3 | ..... | 8 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 21 |
| 13 | 2 | 2 | 8 | 8 | ..... | 12 | 12 | ..... | ..... | 1 | ..... | ..... | 1,100 | 9 | 22 |

[1] Cars rented.

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. |
| | | | | | | Closed and open. | Passenger and express. | | | | | | |
| | PENNSYLVANIA—Continued. | | | | | | | | | | | | |
| 23 | Erie Electric Motor | 84 | 81 | 30 | 51 | | | | 2 | | 1 | 84 | |
| 24 | Erie Traction | 22 | 7 | 5 | | | 2 | 1 | 13 | 1 | | 10 | 12 |
| 25 | Erie Rapid Transit | 12 | 6 | 6 | | | | 1 | 4 | 1 | | 8 | 4 |
| 26 | Franklin Electric Street Railway | 8 | 8 | 3 | 5 | | | | | | | 8 | |
| 27 | Gettysburg Transit | 7 | 6 | | 6 | | | | 1 | | | 6 | 1 |
| 28 | Hanover and McSherrystown | 5 | 4 | 2 | 2 | | | | | 1 | | 3 | 2 |
| 29 | Lehigh Traction | 46 | 39 | 20 | 19 | | | 1 | 3 | 2 | 1 | 34 | 12 |
| 30 | Harrisburg Traction | 116 | 106 | 67 | 39 | | | | 6 | 2 | 2 | 113 | 3 |
| 31 | Harrisburg and Mechanicsburg | 11 | 11 | 9 | 2 | | | | | | | 11 | |
| 32 | Cambria Incline Plane | 2 | 2 | | | | 2 | | | | | | 2 |
| 33 | Johnstown Passenger Railway | 74 | 70 | 50 | 20 | | | | 2 | 2 | | 62 | 12 |
| 34 | Kittanning and Ford City | 7 | 7 | 5 | 2 | | | | | | | 7 | |
| 35 | Conestoga Traction | 84 | 66 | 33 | 22 | 6 | 5 | | 15 | 2 | 1 | 75 | 9 |
| 36 | Lebanon Valley | 22 | 20 | 12 | 8 | | | | 1 | | 1 | 21 | 1 |
| 37 | Lewistown and Reedsville | 9 | 8 | 8 | | | | | 1 | | | 8 | 1 |
| 38 | Susquehanna Traction | 10 | 8 | 5 | 3 | | | | 1 | 1 | | 6 | 4 |
| 39 | Lykens and Williams Valley | 8 | 7 | 3 | 4 | | | | 1 | | | 8 | |
| 40 | Highland Grove | 2 | 2 | 2 | | | | | | | | 2 | |
| 41 | Schuylkill Traction | 37 | 28 | 15 | 10 | | 3 | | 8 | | 1 | 31 | 6 |
| 42 | Mauch Chunk, Lehighton and Slatington | 20 | 16 | 4 | 6 | 6 | | | 3 | 1 | | 17 | 3 |
| 43 | Meadville Traction | 14 | 11 | 8 | 3 | | | | 1 | 1 | 1 | 14 | |
| 44 | Lewisburg, Milton and Watsontown | 9 | 8 | 4 | 4 | | | | | 1 | | 8 | 1 |
| 45 | Montoursville Passenger | 8 | 7 | 3 | 4 | | | | 1 | | | 6 | 2 |
| 46 | New Castle Traction | 52 | 50 | 17 | 33 | | | | 1 | | 1 | 30 | 22 |
| 47 | New Castle and Lowell | 10 | 10 | 10 | | | | | | | | 10 | |
| 48 | Schuylkill Valley Traction | 89 | 80 | 44 | 36 | | | | 3 | 2 | 4 | 89 | |
| 49 | Lansdale and Norristown | 4 | 4 | 4 | | | | | | | | 4 | |
| 50 | Peoples Street Railway | 10 | 8 | 4 | 4 | | | | 1 | 1 | | 8 | 2 |
| 51 | Citizens Traction | 13 | 12 | 4 | 8 | | | | 1 | | | 13 | |
| 52 | Oil City Street Railway | 20 | 18 | 6 | 12 | | | | 2 | | | 20 | |
| 53 | Union Traction | 3,288 | 2,982 | 1,429 | 1,287 | 316 | | 41 | 96 | 85 | 79 | 3,277 | 6 |
| 54 | Southwestern Street Railway | 26 | 24 | 8 | 16 | | | | 1 | | 1 | 26 | |
| 55 | Philadelphia, Bristol and Trenton | 10 | 8 | 4 | 4 | | | | 2 | | | 7 | 3 |
| 56 | Philadelphia and West Chester Traction | 26 | 20 | 11 | 9 | | | | 3 | 2 | 1 | 25 | 1 |
| 57 | Holmesburg, Tacony and Frankford | 43 | 40 | 13 | 27 | | | | | 1 | 2 | 36 | 7 |
| 58 | Fairmount Park Transportation | 74 | 69 | 19 | 50 | | | | 4 | 1 | | 31 | 43 |
| 59 | Delaware County and Philadelphia | 21 | 18 | 12 | 6 | | | | 2 | | 1 | 20 | 1 |
| 60 | Montgomery and Chester | 8 | 7 | 4 | 3 | | | | 1 | | | 8 | |
| 61 | Pittsburg Railways | 1,252 | 1,189 | 673 | 516 | | | 2 | 21 | 8 | 32 | 1,074 | 178 |
| 62 | St. Clair Incline Plane | 2 | 2 | | | | 2 | | | | | | 2 |
| 63 | Duquesne Incline Plane | 2 | 2 | 2 | | | | | | | | | 2 |
| 64 | Pittsburg and Castle Shannon | 2 | 2 | | | | 2 | | | | | | 2 |
| 65 | Monongahela Incline Plane | 4 | 2 | 2 | | | | 2 | | | | | 4 |
| 66 | Penn Incline Plane | 2 | 2 | | | | 2 | | | | | | 2 |
| 67 | Pittsburg, McKeesport and Greensburg | 18 | 18 | 11 | 7 | | | | | | | 18 | |
| 68 | Pittsburg, McKeesport and Connellsville | 79 | 69 | 35 | 34 | | | | 7 | | 3 | 79 | |
| 69 | Pottstown Passenger Railway | 16 | 16 | 9 | 7 | | | | | | | 13 | 3 |
| 70 | Ringing Rocks Electric | 13 | 11 | 2 | 9 | | | | 2 | | | 9 | 4 |
| 71 | Pottsville Union Traction | 62 | 53 | 24 | 23 | 2 | 4 | | 7 | 1 | 1 | 50 | 12 |
| 72 | Punxsutawney Street Railway | 8 | 8 | 7 | 1 | | | | | | | 8 | |
| 73 | United Traction | 118 | 110 | 61 | 49 | | | | | 4 | 4 | 93 | 25 |
| 74 | Waverly, Sayre and Athens | 15 | 13 | 8 | 5 | | | | 1 | | 1 | 14 | 1 |
| 75 | Neversink Mountain Railroad | 8 | 8 | 5 | 3 | | | | | | | 8 | |
| 76 | Mt. Penn Gravity Railway | 10 | 9 | 1 | 8 | | | | | | 1 | 3 | 7 |
| 77 | Scranton Railway | 138 | 126 | 88 | 38 | | | | 9 | | 3 | 112 | 26 |
| 78 | Shamokin and Mt. Carmel | 22 | 20 | 10 | 10 | | | | 1 | 1 | | 22 | |
| 79 | Shamokin and Edgewood | 16 | 13 | 6 | 5 | 2 | | | 3 | | | 10 | 6 |
| 80 | Stroudsburg Passenger | 5 | 4 | 2 | 2 | | | | | 1 | | 2 | 3 |
| 81 | Sunbury and Northumberland | 10 | 7 | 4 | 3 | | | | 2 | 1 | | 7 | 3 |
| 82 | Tamaqua and Lansford | 18 | 17 | 7 | 8 | 2 | | | | | 1 | 15 | 3 |
| 83 | Tarentum Traction Passenger | 7 | 7 | 4 | 3 | | | | | | | 7 | |
| 84 | Titusville Electric Traction | 15 | 13 | 4 | 7 | 2 | | 1 | 1 | | | 11 | 4 |
| 85 | Warren Street Railway | 20 | 16 | 9 | 6 | 1 | | | 3 | 1 | | 18 | 2 |
| 86 | Washington Electric Railway | 12 | 12 | 7 | 5 | | | | | | | 12 | |
| 87 | West Chester Street Railway | 11 | 7 | 4 | 2 | 1 | | | 4 | | | 5 | 6 |
| 88 | Wilkesbarre and Wyoming Valley | 150 | 140 | 65 | 75 | | | | 6 | 2 | 2 | 150 | |
| 89 | Wilkesbarre, Dallas and Harveys Lake | 19 | 14 | 2 | 11 | | 1 | | 3 | 1 | 1 | 12 | 7 |
| 90 | Vallamont Traction | 5 | 5 | 2 | 3 | | | | | | | 5 | |
| 91 | South Side Passenger Railway | 2 | 2 | 1 | 1 | | | | | | | 2 | |
| 92 | Williamsport Passenger Railway | 27 | 24 | 14 | 10 | | | | 1 | 2 | | 16 | 11 |
| 93 | East End Passenger Railway | 2 | 2 | 2 | | | | | | | | 2 | |
| 94 | Red Lion and Windsor | 1 | 1 | | | | 1 | | | | | 1 | |
| 95 | Yardley, Morrisville and Trenton | 5 | 5 | 3 | 2 | | | | | | | 3 | 2 |
| 96 | York and Dover Electric | 1 | 1 | | | | 1 | | | | | 1 | |
| 97 | York and Dallastown Electric | 1 | 1 | | | | 1 | | | | | 1 | |
| 98 | York Street Railway | 40 | 38 | 16 | 22 | | | | 1 | | 1 | 34 | 6 |
| | RHODE ISLAND. | | | | | | | | | | | | |
| | Total for state | 820 | 708 | 371 | 322 | | 15 | 21 | 40 | 51 | | 762 | 58 |
| 1 | Sea View Railroad | 13 | 11 | 4 | 6 | | 1 | | 2 | | | 12 | 1 |
| 2 | Pawtucket Street Railway | 53 | 46 | 28 | 18 | | | | 3 | 4 | | 51 | 2 |
| 3 | Union Railroad | 501 | 429 | 234 | 195 | | | 6 | 31 | 35 | | 498 | 8 |
| 4 | Rhode Island Suburban | 126 | 118 | 48 | 66 | | 4 | | | 8 | | 126 | |
| 5 | Providence and Danielson | 30 | 16 | 8 | 6 | | 2 | 13 | | 1 | | 14 | 16 |
| 6 | New York, New Haven and Hartford | 46 | 43 | 36 | | | 7 | 2 | 1 | | | 22 | 24 |
| 7 | Pawcatuck Valley Railway | 9 | 8 | 1 | 6 | | 1 | | 1 | | | 8 | 1 |
| 8 | Woonsocket Street Railway | 42 | 37 | 12 | 25 | | | | 2 | 3 | | 36 | 6 |

[1] Not reported.

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | | | | Lamps for buildings, shops, car houses, etc. | | | |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | Stations. | Car houses. | Horses. | Arc. | Incandescent. | Miles of exclusive telephone lines. | Number. |
| 81 | | | 30 | | 30 | 81 | 81 | | 1 | 2 | 4 | | 200 | | 23 |
| 22 | 10 | | 5 | 1 | 4 | 7 | 7 | | 4 | 1 | | | 50 | 27 | 24 |
| 12 | | 6 | 6 | 6 | | 8 | 8 | | | 1 | | | 60 | | 25 |
| 8 | | | 3 | 3 | | 3 | 3 | | | | | | 30 | | 26 |
| 7 | | | | | | 6 | 6 | | | 1 | | | 25 | | 27 |
| 4 | | | 2 | | 2 | 4 | 3 | 1 | | 1 | | | 5 | | 28 |
| 46 | | | 21 | 1 | 20 | 43 | 43 | | | 2 | | 5 | 50 | 22 | 29 |
| 116 | 16 | | 73 | 64 | 9 | 113 | 113 | | 5 | 5 | | 10 | 190 | 2 | 30 |
| 11 | 4 | | 9 | | 9 | 11 | 11 | | | 1 | | | 15 | | 31 |
| | | | | | | 2 | | 2 | 2 | | | 3 | | | 32 |
| 60 | 8 | | 50 | | 50 | 72 | 72 | | 3 | 3 | 1 | 7 | 50 | 12 | 33 |
| 7 | | | 5 | 5 | | 7 | 7 | | | 1 | | | 60 | | 34 |
| 84 | | | 44 | 10 | 34 | 75 | 75 | | 6 | 3 | 3 | 2 | 125 | | 35 |
| 22 | | | 13 | 7 | 6 | 21 | 21 | | | 1 | | | 15 | | 36 |
| 8 | 2 | | 8 | 8 | | 8 | 8 | | | 1 | | | 107 | | 37 |
| 9 | | | 5 | 3 | 2 | 8 | 8 | | 1 | | | | 60 | | 38 |
| 8 | | | 4 | | 4 | 8 | 8 | | | 1 | | | 20 | | 39 |
| 2 | | | 2 | 2 | | 2 | 2 | | | 1 | | | | | 40 |
| 28 | | 3 | 18 | 17 | 1 | 28 | 28 | | | 3 | | | 120 | | 41 |
| 17 | 6 | | 10 | 10 | | 17 | 17 | | | 2 | 1 | | 195 | | 42 |
| 14 | | | 11 | 11 | | 11 | 11 | | 1 | 1 | | 6 | 40 | | 43 |
| 8 | | | 4 | 4 | | 8 | 8 | | | 1 | | 4 | 100 | | 44 |
| 8 | | | 2 | 2 | | 7 | 7 | | 1 | 1 | | 10 | 10 | | 45 |
| 50 | | 28 | 17 | 17 | | 50 | 50 | | | 1 | 2 | 58 | 675 | | 46 |
| 10 | 10 | | 10 | | 10 | 10 | 10 | | 2 | 1 | | | 100 | 10 | 47 |
| 89 | 19 | 6 | 40 | 40 | | 84 | 84 | | | 5 | 5 | | 500 | 12 | 48 |
| 4 | 4 | | 4 | 4 | | 4 | 4 | | | 1 | | | 80 | | 49 |
| 10 | | | 4 | 4 | | 8 | 8 | | 2 | 1 | | | 30 | | 50 |
| 8 | 4 | | 4 | 4 | | 12 | 12 | | 3 | 1 | | | 20 | | 51 |
| 20 | | | 6 | 6 | | 18 | 18 | | 1 | 2 | | 2 | 50 | 5 | 52 |
| 3,283 | 713 | | 363 | 363 | | 3,283 | 3,283 | | 15 | 22 | 155 | | | 65 | 53 |
| 26 | | | 8 | 8 | | 24 | 24 | | | | 1 | (1) | (1) | | 54 |
| 10 | | | 4 | | 4 | 8 | 8 | | | 1 | 7 | | 50 | | 55 |
| 26 | 16 | | 11 | 11 | | 26 | 26 | | 10 | 2 | | 20 | 100 | 23 | 56 |
| 40 | | | 40 | | 40 | 43 | 43 | | | 1 | 3 | | 100 | | 57 |
| 73 | | 70 | 9 | 9 | | 71 | 71 | | 18 | 1 | | 15 | 400 | 5 | 58 |
| 21 | | | 10 | 10 | | 20 | 20 | | | 1 | | | 100 | 1 | 59 |
| 8 | | | 4 | 4 | | 8 | 8 | | | 2 | 1 | | 100 | | 60 |
| 1,252 | 2 | 367 | 673 | 103 | 570 | 1,252 | 1,252 | | | 22 | 69 | 220 | 1,000 | | 61 |
| | | | 2 | | 2 | 2 | | 2 | 2 | | | | 15 | | 62 |
| | | | | | | 2 | | 2 | 2 | | | | 30 | | 63 |
| | | | 2 | | 2 | 2 | | 2 | 2 | | | 8 | 12 | | 64 |
| | | | | | | 2 | | 2 | 2 | | | | | | 65 |
| | | | 2 | | 2 | 2 | | 2 | 2 | | | | | | 66 |
| 18 | | | 11 | | 11 | 18 | 18 | | 9 | 1 | | | | | 67 |
| 79 | 25 | 14 | 35 | 35 | | 79 | 79 | | 3 | 3 | 5 | | 180 | | 68 |
| 16 | | | 9 | 1 | 8 | 16 | 16 | | 3 | 1 | | | 30 | | 69 |
| 13 | | | 2 | | 2 | 12 | 12 | | | 1 | | 24 | 150 | 3 | 70 |
| 62 | | | 30 | 30 | | 53 | 53 | | 2 | 1 | | 1 | 200 | | 71 |
| 8 | 2 | | 3 | 3 | | 8 | 8 | | 3 | 2 | | | 40 | | 72 |
| 118 | 16 | | 61 | 47 | 14 | 110 | 110 | | | 8 | 4 | 7 | 208 | | 73 |
| 15 | | | 8 | 8 | | 13 | 13 | | 1 | 1 | | | 75 | | 74 |
| 8 | | | | | | 8 | 8 | | 1 | 1 | | | 5 | | 75 |
| 9 | 9 | | 1 | | 1 | 9 | | 9 | 1 | 1 | | | 40 | 3 | 76 |
| 138 | 15 | 1 | 88 | 63 | 25 | 138 | 138 | | 1 | 3 | 5 | 15 | 765 | | 77 |
| 22 | | | 10 | 1 | 9 | 20 | 20 | | | 1 | | | 100 | | 78 |
| 13 | | | 4 | 4 | | 13 | 13 | | 1 | 2 | 1 | 4 | 300 | | 79 |
| 4 | | | 2 | | 2 | 4 | 2 | 2 | | 1 | | | 5 | | 80 |
| 7 | | | 4 | | 4 | 7 | 7 | | | 1 | | | 40 | | 81 |
| 17 | 14 | 3 | 8 | 8 | | 18 | 18 | | 1 | 1 | | 4 | 500 | | 82 |
| 7 | | | 4 | | 4 | 7 | 7 | | 1 | 1 | | | | | 83 |
| 15 | | | 4 | 4 | | 14 | 14 | | 3 | 1 | | 5 | 50 | | 84 |
| 20 | 2 | | 10 | 4 | 6 | 18 | 18 | | 4 | 2 | 3 | | 150 | | 85 |
| 12 | | 12 | 7 | 7 | | 12 | 12 | | | 1 | | | 20 | | 86 |
| 9 | | | 5 | | 5 | 7 | 5 | 2 | 2 | 2 | | | 17 | 4 | 87 |
| 150 | 28 | | 65 | 65 | | 144 | 144 | | | 4 | 2 | 20 | 550 | | 88 |
| 18 | 4 | 10 | 13 | 13 | | 16 | 16 | | 4 | 1 | | | 60 | 13 | 89 |
| 5 | | | 2 | | 2 | 5 | 5 | | | 1 | | | 10 | | 90 |
| 2 | | | 1 | | 1 | 2 | 2 | | | | | | | | 91 |
| 27 | | | 14 | | 14 | 14 | 14 | | | 2 | | 1 | 30 | | 92 |
| 2 | | | 2 | | 2 | 2 | 2 | | | 1 | | | 5 | | 93 |
| 1 | 1 | | 1 | 1 | | 1 | 1 | | | | | | | | 94 |
| 5 | | | 3 | | 3 | 5 | 5 | | | | | | | | 95 |
| 1 | 1 | | 1 | 1 | | 1 | 1 | | | | | | | | 96 |
| 1 | 1 | | 1 | 1 | | 1 | 1 | | | | | | | | 97 |
| 40 | | | 16 | | 16 | 40 | 40 | | 1 | 3 | 1 | 2 | 30 | | 98 |
| 763 | 123 | 10 | 390 | 390 | | 788 | 788 | | 40 | 24 | 39 | 111 | 5,065 | 25 | |
| 13 | 5 | | 4 | 4 | | 12 | 12 | | 5 | 1 | | | 80 | | 1 |
| 47 | | | 28 | 28 | | 51 | 51 | | | 1 | 1 | | 140 | | 2 |
| 460 | 8 | | 235 | 235 | | 492 | 492 | | | 12 | 35 | 15 | 1,910 | | 3 |
| 118 | 43 | | 52 | 52 | | 126 | 126 | | | 4 | | 95 | 2,750 | | 4 |
| 30 | 13 | 10 | 13 | 13 | | 20 | 20 | | | 2 | | | 150 | 20 | 5 |
| 46 | 46 | | 46 | 46 | | 46 | 46 | | 34 | 1 | | | | | 6 |
| 9 | | | | | | 8 | 8 | | 1 | 1 | | | 20 | 5 | 7 |
| 40 | 8 | | 12 | 12 | | 33 | 33 | | | 2 | 3 | 1 | 15 | | 8 |

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | | With fenders. |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. | |
| | | | | | | Closed and open. | Passenger and express. | | | | | | | |
| | SOUTH CAROLINA. | | | | | | | | | | | | | |
| | Total for state | 135 | 123 | 78 | 35 | 8 | 2 | 6 | 6 | ..... | ..... | 106 | 29 | 94 |
| 1 | North Augusta Electric and Improvement | (1) | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 2 | Charleston Railway, Gas and Electric | 76 | 73 | 51 | 12 | 8 | 2 | 1 | 2 | ..... | ..... | 60 | 16 | 74 |
| 3 | Columbia Railway, Light and Power | 28 | 28 | 10 | 16 | ..... | ..... | ..... | 2 | ..... | ..... | 28 | ..... | 20 |
| 4 | Greenville Traction | 11 | 10 | 5 | 5 | ..... | ..... | ..... | 1 | ..... | ..... | 11 | ..... | ..... |
| 5 | Orangeburg City Street Railway | 7 | 2 | 2 | ..... | ..... | ..... | 5 | ..... | ..... | ..... | ..... | 7 | ..... |
| 6 | Rock Hill Water, Light and Railway | 4 | 4 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 | ..... |
| 7 | Spartanburg Railway, Gas and Electric | 9 | 8 | 6 | 2 | ..... | ..... | ..... | 1 | ..... | ..... | 7 | 2 | ..... |
| | SOUTH DAKOTA. | | | | | | | | | | | | | |
| | Total for state | 2 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... |
| 1 | Rapid City Street Railway[2] | 2 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... |
| | TENNESSEE. | | | | | | | | | | | | | |
| | Total for state | 575 | 555 | 326 | 222 | 5 | 2 | 3 | 14 | 2 | 1 | 470 | 105 | 353 |
| 1 | Bristol Belt Line | 10 | 8 | 5 | 3 | ..... | ..... | ..... | 2 | ..... | ..... | 9 | 1 | ..... |
| 2 | Chattanooga Electric Railway | 66 | 63 | 48 | 15 | ..... | ..... | 1 | 2 | ..... | ..... | 62 | 4 | ..... |
| 3 | Rapid Transit of Chattanooga | 35 | 31 | 25 | 4 | ..... | 2 | ..... | 4 | ..... | ..... | 30 | 5 | ..... |
| 4 | Electric Railway of Clarksville | 6 | 6 | 3 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 4 | 2 | ..... |
| 5 | Jackson and Suburban | 11 | 10 | 5 | 5 | ..... | ..... | ..... | 1 | ..... | ..... | 5 | 6 | 2 |
| 6 | Knoxville Traction | 59 | 56 | 26 | 30 | ..... | ..... | ..... | 2 | 1 | ..... | 50 | 9 | ..... |
| 7 | Memphis Street Railway | 215 | 212 | 132 | 80 | ..... | ..... | 1 | 1 | ..... | 1 | 184 | 31 | 182 |
| 8 | Nashville Railway | 178 | 169 | 82 | 82 | 5 | ..... | 1 | 2 | 1 | ..... | 126 | 47 | 169 |
| | TEXAS. | | | | | | | | | | | | | |
| | Total for state | 474 | 449 | 230 | 203 | 11 | 5 | 4 | 21 | ..... | ..... | 366 | 108 | 95 |
| 1 | Austin Electric Railway | 14 | 13 | 13 | ..... | ..... | ..... | ..... | 1 | ..... | ..... | 13 | 1 | ..... |
| 2 | Bonham Electric Railway, Light and Power | 5 | 5 | 3 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 3 | 2 |
| 3 | Dallas Consolidated | 65 | 65 | 34 | 31 | ..... | ..... | ..... | ..... | ..... | ..... | 55 | 10 | ..... |
| 4 | Rapid Transit | 32 | 31 | 9 | 22 | ..... | ..... | ..... | 1 | ..... | ..... | 23 | 9 | ..... |
| 5 | Denison and Sherman | 17 | 16 | 6 | 7 | ..... | 3 | ..... | 1 | ..... | ..... | 9 | 8 | 14 |
| 6 | El Paso Electric Railway | 22 | 20 | ..... | 14 | 6 | ..... | ..... | 2 | ..... | ..... | 14 | 8 | ..... |
| 7 | Northern Texas Traction | 61 | 60 | 47 | 11 | ..... | 2 | 1 | ..... | ..... | ..... | 50 | 11 | 10 |
| 8 | Galveston Street Railway | 69 | 62 | 31 | 31 | ..... | ..... | ..... | 7 | ..... | ..... | 63 | 6 | 62 |
| 9 | Houston Electric | 66 | 61 | 28 | 29 | 4 | ..... | ..... | 5 | ..... | ..... | 48 | 18 | ..... |
| 10 | Laredo Electric and Railway | 7 | 6 | 2 | 4 | ..... | ..... | ..... | 1 | ..... | ..... | 6 | 1 | ..... |
| 11 | Longview and Junction | 2 | 2 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... |
| 12 | Paris Transit | 7 | 6 | 5 | 1 | ..... | ..... | ..... | 1 | ..... | ..... | 5 | 2 | 7 |
| 13 | San Antonio Traction | 69 | 69 | 25 | 44 | ..... | ..... | ..... | ..... | ..... | ..... | 58 | 11 | ..... |
| 14 | Seguin Street Railway | 5 | 2 | 2 | ..... | ..... | ..... | 3 | ..... | ..... | ..... | ..... | 5 | ..... |
| 15 | Citizens Railway | 22 | 21 | 18 | 3 | ..... | ..... | ..... | 1 | ..... | ..... | 20 | 2 | ..... |
| 16 | Waxahachie Street Railway | 6 | 5 | 3 | 2 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 6 | ..... |
| 17 | Lake Park Street Railroad | 5 | 5 | 3 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 5 | ..... |
| | UTAH. | | | | | | | | | | | | | |
| | Total for state | 158 | 149 | 95 | 52 | 2 | ..... | ..... | 6 | 2 | 1 | 132 | 26 | 2 |
| 1 | Ogden Rapid Transit | 22 | 18 | 16 | 2 | ..... | ..... | ..... | 3 | 1 | ..... | 12 | 10 | ..... |
| 2 | Consolidated Railway and Power | 134 | 129 | 77 | 50 | 2 | ..... | ..... | 3 | 1 | 1 | 118 | 16 | ..... |
| 3 | Salt Lake and Utah Valley | 2 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 |
| | VERMONT. | | | | | | | | | | | | | |
| | Total for state | 105 | 80 | 31 | 41 | 2 | 6 | 7 | 8 | 8 | 2 | 90 | 15 | 78 |
| 1 | Barre and Montpelier | 14 | 12 | 6 | 6 | ..... | ..... | ..... | ..... | ..... | 2 | 13 | 1 | 12 |
| 2 | Bellows Falls and Saxtons River | 10 | 6 | 1 | 3 | 2 | ..... | 2 | 1 | 1 | ..... | 7 | 3 | 6 |
| 3 | Brattleboro Street Railway | 10 | 8 | 4 | 4 | ..... | ..... | ..... | 1 | 1 | ..... | 8 | 2 | 7 |
| 4 | Burlington Traction | 20 | 18 | 8 | 10 | ..... | ..... | ..... | ..... | 2 | ..... | 20 | ..... | 18 |
| 5 | Rutland Street Railway | 14 | 13 | 6 | 7 | ..... | ..... | ..... | ..... | 1 | ..... | 14 | ..... | 14 |
| 6 | St. Albans Street Railway | 12 | 9 | 2 | 6 | ..... | 1 | 3 | ..... | ..... | ..... | 8 | 4 | 10 |
| 7 | Springfield Electric Railway | 12 | 5 | 1 | 2 | ..... | 2 | ..... | 6 | 1 | ..... | 8 | 4 | 5 |
| 8 | Mt. Mansfield Electric Railway | 6 | 3 | ..... | ..... | ..... | 3 | 2 | ..... | 1 | ..... | 5 | 1 | ..... |
| 9 | Military Post Railway | 7 | 6 | 3 | 3 | ..... | ..... | ..... | ..... | 1 | ..... | 7 | ..... | 6 |
| | VIRGINIA. | | | | | | | | | | | | | |
| | Total for state | 681 | 626 | 356 | 256 | 6 | 8 | 25 | 25 | 1 | 4 | 461 | 220 | 497 |
| 1 | Charlottesville City and Suburban | 10 | 10 | 4 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | 7 | 3 | 7 |
| 2 | Danville Railway and Electric | 23 | 23 | 9 | 14 | ..... | ..... | ..... | ..... | ..... | ..... | 10 | 13 | 10 |
| 3 | Washington, Arlington and Falls Church | 25 | 19 | 11 | 8 | ..... | ..... | 6 | ..... | ..... | ..... | 15 | 10 | ..... |
| 4 | Lynchburg Traction and Light | 30 | 30 | 15 | 15 | ..... | ..... | ..... | ..... | ..... | ..... | 28 | 2 | ..... |
| 5 | Citizens Railway, Light and Power | 12 | 12 | 8 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | 8 | 4 | 8 |
| 6 | Newport News and Old Point Railway and Electric | 60 | 51 | 24 | 27 | ..... | ..... | 3 | 5 | ..... | 1 | 35 | 25 | 35 |
| 7 | Bay Shore Terminal | 8 | 7 | 4 | 3 | ..... | ..... | ..... | 1 | ..... | ..... | 5 | 3 | 4 |
| 8 | Norfolk and Atlantic Terminal | 24 | 22 | 6 | 8 | 6 | 2 | 2 | ..... | ..... | ..... | 13 | 11 | 14 |
| 9 | Berkley Street Railway | 16 | 16 | 13 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 16 | ..... | 16 |
| 10 | Norfolk Railway and Light | 83 | 67 | 44 | 23 | ..... | ..... | 13 | 2 | ..... | 1 | 61 | 22 | 61 |
| 11 | Southside Railway and Development | 38 | 37 | 15 | 22 | ..... | ..... | ..... | 1 | ..... | ..... | 16 | 22 | 29 |

[1] Cars rented.

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | Stations. | Car houses. | Horses. | Lamps for buildings, shops, car houses, etc. | | Miles of exclusive telephone lines. | Number. |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | | | | Arc. | Incandescent. | | |
| 133 | 26 | ..... | 19 | 19 | ..... | 127 | 121 | 6 | 6 | 7 | 17 | 18 | 1,725 | 7 | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 74 | 4 | ..... | 13 | 13 | ..... | 73 | 73 | ..... | ..... | 2 | 3 | 12 | 275 | 7 | 2 |
| 28 | 22 | ..... | ..... | ..... | ..... | 28 | 28 | ..... | 3 | 1 | 3 | 1 | 1,200 | ..... | 3 |
| 11 | ..... | ..... | ..... | ..... | ..... | 11 | 11 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 4 |
| 7 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | ..... | 1 | 6 | ..... | ..... | ..... | 5 |
| 4 | ..... | ..... | ..... | ..... | ..... | 4 | ..... | 4 | ..... | 1 | 4 | ..... | ..... | ..... | 6 |
| 9 | ..... | ..... | 6 | 6 | ..... | 9 | 9 | ..... | 3 | 1 | 1 | 5 | 250 | ..... | 7 |
| 2 | ..... | ..... | 2 | ..... | 2 | 2 | ..... | 2 | ..... | ..... | 3 | ..... | ..... | ..... | |
| 2 | ..... | ..... | 2 | ..... | 2 | 2 | ..... | 2 | ..... | ..... | 3 | ..... | ..... | ..... | 1 |
| 563 | 14 | 14 | 124 | 119 | 5 | 529 | 529 | ..... | 27 | 16 | 22 | 48 | 905 | 10 | |
| 10 | ..... | ..... | 5 | 2 | 3 | 9 | 9 | ..... | 2 | 1 | ..... | ..... | 25 | ..... | 1 |
| 62 | 4 | ..... | 40 | 40 | ..... | 63 | 63 | ..... | 1 | 3 | ..... | 5 | 250 | ..... | 2 |
| 29 | ..... | ..... | 27 | 27 | ..... | 29 | 29 | ..... | 20 | 2 | ..... | 10 | 100 | 10 | 3 |
| 6 | ..... | ..... | ..... | ..... | ..... | 6 | 6 | ..... | 1 | 1 | ..... | ..... | 15 | ..... | 4 |
| 10 | ..... | ..... | 2 | ..... | 2 | 10 | 10 | ..... | ..... | 1 | 1 | ..... | 145 | ..... | 5 |
| 58 | ..... | ..... | 26 | 26 | ..... | 57 | 57 | ..... | 1 | 2 | 4 | 10 | 100 | ..... | 6 |
| 215 | 10 | 9 | ..... | ..... | ..... | 214 | 214 | ..... | 1 | 1 | 15 | 19 | 150 | ..... | 7 |
| 173 | ..... | 5 | 24 | 24 | ..... | 141 | 141 | ..... | 1 | 5 | 2 | 4 | 120 | ..... | 8 |
| 470 | 17 | ..... | 37 | 27 | 10 | 456 | 442 | 14 | 7 | 24 | 58 | 52 | 1,867 | 44 | |
| 14 | ..... | ..... | ..... | ..... | ..... | 13 | 13 | ..... | ..... | 1 | 2 | 5 | 40 | ..... | 1 |
| 5 | ..... | ..... | 2 | 2 | ..... | 5 | 5 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 2 |
| 65 | ..... | ..... | ..... | ..... | ..... | 65 | 65 | ..... | ..... | 1 | 8 | ..... | 50 | ..... | 3 |
| 32 | ..... | ..... | 9 | ..... | 9 | 32 | 32 | ..... | ..... | 4 | ..... | ..... | 50 | ..... | 4 |
| 17 | 5 | ..... | 5 | 5 | ..... | 16 | 16 | ..... | 1 | 1 | ..... | 10 | 600 | 10 | 5 |
| 22 | 2 | ..... | ..... | ..... | ..... | 20 | 20 | ..... | ..... | 1 | ..... | 3 | 65 | ..... | 6 |
| 61 | 10 | ..... | 15 | 15 | ..... | 61 | 61 | ..... | 4 | 4 | 3 | 12 | 220 | 34 | 7 |
| 69 | ..... | ..... | ..... | ..... | ..... | 66 | 66 | ..... | ..... | 2 | 4 | 10 | 100 | ..... | 8 |
| 62 | ..... | ..... | ..... | ..... | ..... | 62 | 62 | ..... | ..... | 1 | 2 | 4 | 400 | ..... | 9 |
| 7 | ..... | ..... | ..... | ..... | ..... | 6 | 6 | ..... | 1 | 1 | ..... | ..... | 24 | ..... | 10 |
| 2 | ..... | ..... | 1 | ..... | 1 | 2 | ..... | 2 | ..... | 1 | 6 | ..... | ..... | ..... | 11 |
| 7 | ..... | ..... | 5 | 5 | ..... | 6 | 6 | ..... | ..... | 1 | 1 | 5 | 125 | ..... | 12 |
| 69 | ..... | ..... | ..... | ..... | ..... | 69 | 69 | ..... | ..... | 1 | 6 | 3 | 150 | ..... | 13 |
| 5 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 2 | ..... | 1 | 5 | ..... | ..... | ..... | 14 |
| 22 | ..... | ..... | ..... | ..... | ..... | 21 | 21 | ..... | 1 | 1 | 4 | ..... | 40 | ..... | 15 |
| 6 | ..... | ..... | ..... | ..... | ..... | 5 | ..... | 5 | ..... | 1 | 17 | ..... | 3 | ..... | 16 |
| 5 | ..... | ..... | ..... | ..... | ..... | 5 | ..... | 5 | ..... | 1 | (3) | ..... | ..... | ..... | 17 |
| 158 | 6 | ..... | 89 | 35 | 54 | 151 | 151 | ..... | ..... | 4 | 10 | 2 | 80 | ..... | |
| 22 | ..... | ..... | 10 | 10 | ..... | 18 | 18 | ..... | ..... | 1 | ..... | ..... | 50 | ..... | 1 |
| 134 | 6 | ..... | 77 | 25 | 52 | 131 | 131 | ..... | ..... | 2 | 10 | 2 | 25 | ..... | 2 |
| 2 | ..... | ..... | 2 | ..... | 2 | 2 | 2 | ..... | ..... | 1 | ..... | ..... | 5 | ..... | 3 |
| 95 | 16 | ..... | 47 | 34 | 13 | 88 | 88 | ..... | 8 | 12 | 8 | 15 | 520 | 44 | |
| 12 | ..... | ..... | 6 | 6 | ..... | 12 | 12 | ..... | ..... | 1 | 1 | ..... | 35 | 14 | 1 |
| 10 | ..... | ..... | 4 | 3 | 1 | 7 | 7 | ..... | 1 | 1 | ..... | ..... | 125 | ..... | 2 |
| 10 | ..... | ..... | 4 | 4 | ..... | 9 | 9 | ..... | 1 | 2 | ..... | ..... | 45 | ..... | 3 |
| 20 | ..... | ..... | 8 | 8 | ..... | 18 | 18 | ..... | 1 | 1 | 2 | ..... | 15 | ..... | 4 |
| 12 | 2 | ..... | 6 | ..... | 6 | 13 | 13 | ..... | 1 | 2 | 5 | ..... | 25 | ..... | 5 |
| 12 | 11 | ..... | 4 | 3 | 1 | 10 | 10 | ..... | ..... | 1 | ..... | 15 | 200 | 13 | 6 |
| 6 | 3 | ..... | 4 | 3 | 1 | 8 | 8 | ..... | ..... | 2 | ..... | ..... | 40 | 7 | 7 |
| 6 | ..... | ..... | 8 | 4 | 4 | 5 | 5 | ..... | 3 | 1 | ..... | ..... | 30 | 10 | 8 |
| 7 | ..... | ..... | 3 | 3 | ..... | 6 | 6 | ..... | 1 | 1 | ..... | ..... | 5 | ..... | 9 |
| 678 | 65 | 6 | 267 | 265 | 2 | 640 | 638 | 2 | 52 | 24 | 42 | 77 | 1,666 | 62 | |
| 10 | ..... | ..... | 4 | 4 | ..... | 10 | 10 | ..... | 1 | 1 | 1 | ..... | 50 | ..... | 1 |
| 23 | ..... | ..... | 9 | 9 | ..... | 23 | 23 | ..... | ..... | 1 | ..... | ..... | 150 | ..... | 2 |
| 25 | ..... | ..... | 8 | 8 | ..... | 19 | 19 | ..... | 15 | 2 | ..... | ..... | 55 | 18 | 3 |
| 30 | ..... | 2 | 15 | 15 | ..... | 30 | 30 | ..... | ..... | 2 | 1 | ..... | 42 | ..... | 4 |
| 12 | ..... | ..... | 8 | 8 | ..... | 12 | 12 | ..... | 1 | 1 | ..... | 4 | 120 | ..... | 5 |
| 60 | ..... | ..... | 16 | 16 | ..... | 56 | 56 | ..... | ..... | 1 | ..... | 2 | 35 | ..... | 6 |
| 8 | ..... | 4 | ..... | ..... | ..... | 7 | 7 | ..... | ..... | 1 | ..... | ..... | 105 | ..... | 7 |
| 22 | 15 | ..... | 3 | 3 | ..... | 22 | 22 | ..... | 3 | 1 | ..... | 6 | 150 | 9 | 8 |
| 16 | ..... | ..... | 12 | 12 | ..... | 16 | 16 | ..... | 3 | 1 | ..... | ..... | 100 | ..... | 9 |
| 83 | 14 | ..... | 6 | 6 | ..... | 72 | 72 | ..... | 8 | 2 | 4 | 22 | 400 | ..... | 10 |
| 37 | ..... | ..... | 15 | 15 | ..... | 37 | 37 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | 11 |

[2] This company failed to make a report; the information given was obtained from street-railway journals and directories.

[3] Not reported.

TABLE 95.—CARS AND MISCELLANEOUS

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF CARS. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aggregate. | Passenger. | | | | | Express, freight, and mail. | Work and miscellaneous. | Snow-plow. | Sweeper. | Electric equipment. | | With fenders. |
| | | | Total. | Closed. | Open. | Combination. | | | | | | With. | Without. | |
| | | | | | | Closed and open. | Passenger and express. | | | | | | | |
| | VIRGINIA—Continued. | | | | | | | | | | | | | |
| 12 | Richmond and Petersburg Electric | 9 | 8 | 6 | ..... | ..... | 2 | ..... | 1 | ..... | ..... | 8 | 1 | 8 |
| 13 | Old Dominion Railway | 21 | 19 | 13 | 4 | ..... | 2 | ..... | 2 | ..... | ..... | 11 | 10 | 19 |
| 14 | Norfolk, Portsmouth and Newport News | 23 | 21 | 14 | 7 | ..... | ..... | ..... | 2 | ..... | ..... | 21 | 2 | 21 |
| 15 | Radford Water Power | 3 | 3 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 | ..... | ..... |
| 16 | Richmond Traction | 100 | 98 | 53 | 45 | ..... | ..... | ..... | 1 | ..... | 1 | 74 | 26 | 100 |
| 17 | Richmond Passenger and Power | 95 | 94 | 48 | 46 | ..... | ..... | ..... | ..... | ..... | 1 | 71 | 24 | 95 |
| 18 | Virginia Passenger and Power | 54 | 48 | 29 | 19 | ..... | ..... | 1 | 5 | ..... | ..... | 31 | 23 | 54 |
| 19 | Roanoke Railway and Electric | 13 | 12 | 10 | 2 | ..... | ..... | ..... | 1 | ..... | ..... | 12 | 1 | ..... |
| 20 | Tazewell Street Railway | 2 | 2 | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | ..... |
| 21 | Washington, Alexandria and Mt. Vernon | 32 | 27 | 25 | ..... | ..... | 2 | ..... | 4 | 1 | ..... | 16 | 16 | 16 |
| | WASHINGTON. | | | | | | | | | | | | | |
| | Total for state | 431 | 312 | 126 | 77 | 109 | ..... | 14 | 99 | 6 | ..... | 268 | 163 | 325 |
| 1 | Everett Railway and Electric | 7 | 5 | 5 | ..... | ..... | ..... | ..... | 1 | 1 | ..... | 6 | 1 | 5 |
| 2 | Olympia Light and Power | 9 | 4 | 2 | 2 | ..... | ..... | 2 | 3 | ..... | ..... | 6 | 3 | 6 |
| 3 | Seattle Electric | 215 | 181 | 79 | 36 | 66 | ..... | 4 | 27 | 3 | ..... | 136 | 79 | 189 |
| 4 | Seattle and Renton | 33 | 10 | 5 | 4 | 1 | ..... | 1 | 22 | ..... | ..... | 12 | 21 | 11 |
| 5 | Washington Water Power | 45 | 42 | 2 | 3 | 37 | ..... | ..... | 1 | 2 | ..... | 44 | 1 | 42 |
| 6 | Spokane and Montrose Motor | 5 | 4 | 4 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 4 | 1 | 4 |
| 7 | Tacoma Railway and Power | 101 | 52 | 21 | 26 | 5 | ..... | 5 | 44 | ..... | ..... | 45 | 56 | 54 |
| 8 | Northern Railway and Improvement | 16 | 14 | 8 | 6 | ..... | ..... | 1 | 1 | ..... | ..... | 15 | 1 | 14 |
| | WEST VIRGINIA. | | | | | | | | | | | | | |
| | Total for state | 287 | 272 | 126 | 134 | 11 | 1 | 3 | 11 | ..... | 1 | 276 | 11 | 174 |
| 1 | Kanawha Valley Traction | 11 | 10 | 6 | 4 | ..... | ..... | ..... | 1 | ..... | ..... | 10 | 1 | ..... |
| 2 | East Liverpool and Rock Springs | 18 | 18 | 6 | 12 | ..... | ..... | ..... | ..... | ..... | ..... | 18 | ..... | ..... |
| 3 | Fairmont and Clarksburg | 13 | 13 | 7 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | 7 | 6 | 13 |
| 4 | Camden Interstate Railway | 44 | 38 | 28 | 10 | ..... | ..... | 2 | 4 | ..... | ..... | 42 | 2 | ..... |
| 5 | Parkersburg, Marietta and Interurban | 49 | 47 | 23 | 24 | ..... | ..... | ..... | 2 | ..... | ..... | 47 | 2 | 16 |
| 6 | Wheeling and Wellsburg | 4 | 4 | 3 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 4 | ..... | ..... |
| 7 | Wheeling Traction | 111 | 108 | 44 | 56 | 8 | ..... | ..... | 2 | ..... | 1 | 111 | ..... | 111 |
| 8 | Wheeling and Elm Grove | 37 | 34 | 9 | 21 | 3 | 1 | 1 | 2 | ..... | ..... | 37 | ..... | 34 |
| | WISCONSIN. | | | | | | | | | | | | | |
| | Total for state | 682 | 621 | 421 | 196 | 2 | 2 | 1 | 36 | 12 | 12 | 599 | 83 | 475 |
| 1 | Wisconsin Traction, Light, Heat and Power | 12 | 10 | 8 | 2 | ..... | ..... | ..... | 2 | ..... | ..... | 12 | ..... | 10 |
| 2 | Ashland Light, Power and Street Railway | 14 | 11 | 8 | 3 | ..... | ..... | ..... | 2 | 1 | ..... | 11 | 3 | 2 |
| 3 | Chippewa Valley Electric Railroad | 22 | 20 | 12 | 8 | ..... | ..... | ..... | 1 | 1 | ..... | 13 | 9 | ..... |
| 4 | Fond du Lac Street Railway and Light | 19 | 18 | 12 | 6 | ..... | ..... | ..... | 1 | ..... | ..... | 13 | 6 | ..... |
| 5 | Fox River Electric Railway and Power | 26 | 23 | 14 | 9 | ..... | ..... | ..... | 2 | 1 | ..... | 17 | 9 | 16 |
| 6 | Janesville Street Railway | 6 | 6 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | ..... | 6 |
| 7 | La Crosse City Railway | 17 | 16 | 15 | 1 | ..... | ..... | ..... | ..... | 1 | ..... | 17 | ..... | 17 |
| 8 | La Crosse and Onalaska | 1 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 1 |
| 9 | Madison Traction | 33 | 31 | 16 | 15 | ..... | ..... | ..... | 1 | 1 | ..... | 29 | 4 | 31 |
| 10 | Manitowoc and Northern | 10 | 10 | 7 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 4 | ..... |
| 11 | Marinette Gas, Electric Light and Street Railway | 21 | 21 | 5 | 16 | ..... | ..... | ..... | ..... | ..... | ..... | 9 | 12 | ..... |
| 12 | Merrill Railway and Lighting | 4 | 3 | 3 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 3 | 1 | ..... |
| 13 | Milwaukee Electric Railway and Light | 396 | 357 | 257 | 98 | 2 | ..... | ..... | 24 | 4 | 11 | 396 | ..... | 351 |
| 14 | Milwaukee Light, Heat and Traction | 28 | 28 | 25 | 3 | ..... | ..... | ..... | ..... | ..... | ..... | 20 | 8 | 20 |
| 15 | Winnebago Traction | 42 | 39 | 21 | 18 | ..... | ..... | ..... | 1 | 1 | 1 | 27 | 15 | 21 |
| 16 | Sheboygan Light, Power and Railway | 22 | 20 | 10 | 8 | ..... | 2 | 1 | ..... | 1 | ..... | 16 | 6 | ..... |
| 17 | Waupaca Electric Light and Railway | 9 | 7 | 1 | 6 | ..... | ..... | ..... | 2 | ..... | ..... | 3 | 6 | ..... |
| | HAWAII. | | | | | | | | | | | | | |
| | Total for territory | 81 | 79 | 18 | 53 | 8 | ..... | 2 | ..... | ..... | ..... | 39 | 42 | 35 |
| 1 | Hawaiian Tramways | 32 | 32 | 16 | 16 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 32 | ..... |
| 2 | Honolulu Rapid Transit and Land | 45 | 45 | 2 | 35 | 8 | ..... | ..... | ..... | ..... | ..... | 35 | 10 | 35 |
| 3 | Pacific Heights Electric Railway | 4 | 2 | ..... | 2 | ..... | ..... | 2 | ..... | ..... | ..... | 4 | ..... | ..... |
| | PORTO RICO. | | | | | | | | | | | | | |
| | Total | 34 | 26 | 17 | 9 | ..... | ..... | 1 | 7 | ..... | ..... | 13 | 21 | 13 |
| 1 | Tramway Stock | 16 | 14 | 5 | 9 | ..... | ..... | ..... | 2 | ..... | ..... | ..... | 16 | ..... |
| 2 | San Juan Light and Transit | 18 | 12 | 12 | ..... | ..... | ..... | 1 | 5 | ..... | ..... | 13 | 5 | 13 |

[1] Not reported.

EQUIPMENT, BY COMPANIES: 1902—Continued.

| NUMBER OF CARS—continued. | | | | | | | | | NUMBER OF— | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| With brakes. | | | Heated. | | | Lighted. | | | Stations. | Car houses. | Horses. | Lamps for buildings, shops, car houses, etc. | | Miles of exclusive telephone lines. | Number. |
| Hand. | Air. | Other mechanical. | Total. | Electric. | Stove, etc. | Total. | Electric. | Oil, gas, etc. | | | | Arc. | Incandescent. | | |
| 9 | 8 | ..... | 8 | 8 | ..... | 8 | 8 | ..... | 5 | 1 | ..... | ..... | 55 | 22 | 12 |
| 21 | 2 | ..... | 2 | 2 | ..... | 19 | 19 | ..... | ..... | 1 | ..... | ..... | 60 | ..... | 13 |
| 23 | 3 | ..... | ..... | ..... | ..... | 21 | 21 | ..... | ..... | 1 | ..... | ..... | 75 | ..... | 14 |
| 3 | ..... | ..... | ..... | ..... | ..... | 3 | 3 | ..... | ..... | 1 | ..... | ..... | 20 | ..... | 15 |
| 100 | ..... | ..... | 53 | 53 | ..... | 100 | 100 | ..... | ..... | 2 | 4 | 16 | ..... | ..... | 16 |
| 95 | 2 | ..... | 48 | 48 | ..... | 95 | 95 | ..... | ..... | 2 | 20 | 15 | 23 | ..... | 17 |
| 54 | ..... | ..... | 29 | 29 | ..... | 49 | 49 | ..... | ..... | ..... | 10 | 4 | 28 | ..... | 18 |
| 18 | ..... | ..... | 4 | 4 | ..... | 12 | 12 | ..... | 1 | 1 | ..... | 8 | 98 | ..... | 19 |
| 2 | ..... | ..... | 2 | ..... | 2 | 2 | ..... | 2 | ..... | ..... | 2 | ..... | ..... | ..... | 20 |
| 32 | 21 | ..... | 25 | 25 | ..... | 27 | 27 | ..... | 15 | 1 | ..... | ..... | 100 | 13 | 21 |
| 429 | 41 | 180 | 52 | 49 | 3 | 336 | 265 | 71 | 63 | 16 | 33 | 63 | 1,608 | 63 | |
| 7 | ..... | ..... | ..... | ..... | ..... | 6 | 5 | 1 | 2 | 1 | 4 | 16 | 240 | ..... | 1 |
| 9 | ..... | 1 | ..... | ..... | ..... | 5 | 5 | ..... | 2 | 1 | ..... | ..... | 40 | 3 | 2 |
| 215 | 41 | 66 | ..... | ..... | ..... | 193 | 135 | 58 | 22 | 4 | 22 | 7 | 520 | 60 | 3 |
| 33 | ..... | 11 | 3 | 3 | ..... | 12 | 12 | ..... | 17 | 2 | ..... | ..... | 40 | ..... | 4 |
| 45 | ..... | 40 | 42 | 42 | ..... | 45 | 45 | ..... | ..... | 1 | 6 | 11 | 66 | ..... | 5 |
| 5 | ..... | ..... | 4 | 4 | ..... | 4 | 4 | ..... | ..... | 1 | ..... | ..... | 6 | ..... | 6 |
| 101 | ..... | 12 | 3 | ..... | 3 | 57 | 45 | 12 | 20 | 5 | 1 | 17 | 600 | ..... | 7 |
| 14 | ..... | ..... | ..... | ..... | ..... | 14 | 14 | ..... | ..... | 1 | ..... | 12 | 96 | ..... | 8 |
| 286 | 17 | 20 | 149 | 136 | 13 | 281 | 281 | ..... | 4 | 18 | 5 | 27 | 1,060 | 32 | |
| 10 | ..... | ..... | 6 | 6 | ..... | 10 | 10 | ..... | 1 | 1 | ..... | ..... | 34 | ..... | 1 |
| 18 | ..... | 6 | 6 | 2 | 4 | 18 | 18 | ..... | ..... | 1 | ..... | 1 | 36 | ..... | 2 |
| 13 | ..... | ..... | 7 | 7 | ..... | 13 | 13 | ..... | ..... | 2 | ..... | ..... | 200 | ..... | 3 |
| 44 | 10 | 4 | 39 | 30 | 9 | 41 | 41 | ..... | ..... | 5 | 3 | 4 | 105 | 18 | 4 |
| 49 | 4 | 4 | 23 | 23 | ..... | 47 | 47 | ..... | ..... | 2 | ..... | 4 | 210 | 14 | 5 |
| 4 | ..... | ..... | 4 | 4 | ..... | 4 | 4 | ..... | ..... | 1 | ..... | ..... | 50 | ..... | 6 |
| 111 | 2 | ..... | 51 | 51 | ..... | 111 | 111 | ..... | ..... | 2 | 2 | 18 | 225 | ..... | 7 |
| 37 | 1 | 6 | 13 | 13 | ..... | 37 | 37 | ..... | 3 | 4 | ..... | ..... | 200 | ..... | 8 |
| 679 | 24 | 2 | 428 | 47 | 381 | 631 | 629 | 2 | 15 | 22 | 70 | 93 | 4,181 | 317 | |
| 12 | 6 | ..... | 8 | ..... | 8 | 12 | 12 | ..... | 2 | 1 | 1 | ..... | 180 | 12 | 1 |
| 14 | ..... | ..... | 8 | ..... | 8 | 11 | 11 | ..... | ..... | 1 | 2 | ..... | 80 | ..... | 2 |
| 22 | 2 | ..... | 12 | 12 | ..... | 20 | 20 | ..... | 1 | 1 | 1 | ..... | 50 | 14 | 3 |
| 18 | ..... | ..... | 12 | ..... | 12 | 18 | 18 | ..... | ..... | 1 | ..... | 2 | 121 | 4 | 4 |
| 24 | ..... | ..... | 16 | 1 | 15 | 24 | 24 | ..... | 1 | 1 | ..... | ..... | 90 | ..... | 5 |
| 6 | ..... | ..... | 5 | 3 | 2 | 6 | 6 | ..... | 1 | 1 | ..... | ..... | 60 | ..... | 6 |
| 17 | ..... | ..... | 15 | ..... | 15 | 16 | 16 | ..... | ..... | 1 | 4 | ..... | 70 | ..... | 7 |
| 1 | ..... | ..... | 1 | ..... | 1 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 |
| 33 | ..... | ..... | 17 | ..... | 17 | 33 | 33 | ..... | ..... | 2 | 4 | ..... | 40 | ..... | 9 |
| 10 | ..... | 2 | 10 | 2 | 8 | 10 | 10 | ..... | 1 | 1 | 2 | ..... | 20 | 6 | 10 |
| 21 | ..... | ..... | 5 | 2 | 3 | 21 | 21 | ..... | ..... | 1 | 3 | ..... | 75 | ..... | 11 |
| 4 | ..... | ..... | 3 | 3 | ..... | 3 | 3 | ..... | ..... | 1 | ..... | 1 | 48 | ..... | 12 |
| 396 | 10 | ..... | 257 | ..... | 257 | 357 | 357 | ..... | 2 | 5 | 49 | 87 | 2,858 | 264 | 13 |
| 28 | ..... | ..... | 25 | ..... | 25 | 28 | 28 | ..... | ..... | 2 | ..... | ..... | 169 | ..... | 14 |
| 42 | 6 | ..... | 21 | 15 | 6 | 42 | 42 | ..... | 1 | 1 | 1 | ..... | 135 | 17 | 15 |
| 22 | ..... | ..... | 12 | 8 | 4 | 22 | 20 | 2 | ..... | 1 | 3 | 3 | 185 | ..... | 16 |
| 9 | ..... | ..... | 1 | 1 | ..... | 7 | 7 | ..... | 6 | 1 | ..... | ..... | 50 | ..... | 17 |
| 81 | ..... | ..... | ..... | ..... | ..... | 79 | 47 | 32 | 2 | 1 | 7 | ..... | 250 | 2 | |
| 32 | ..... | ..... | ..... | ..... | ..... | 32 | ..... | 32 | ..... | ..... | (1) | ..... | ..... | ..... | 1 |
| 45 | ..... | ..... | ..... | ..... | ..... | 45 | 45 | ..... | 1 | 1 | 7 | ..... | ..... | ..... | 2 |
| 4 | ..... | ..... | ..... | ..... | ..... | 2 | 2 | ..... | 1 | ..... | ..... | ..... | 250 | 2 | 3 |
| 29 | ..... | 11 | ..... | ..... | ..... | 27 | 13 | 14 | 1 | 3 | 49 | 2 | 171 | 9 | |
| 16 | ..... | ..... | ..... | ..... | ..... | 14 | ..... | 14 | ..... | 1 | 47 | ..... | ..... | ..... | 1 |
| 13 | ..... | 11 | ..... | ..... | ..... | 13 | 13 | ..... | 1 | 2 | 2 | 2 | 171 | 9 | 2 |

TABLE 96.—POWER AND GENERATING

| Number. | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. | | | | | | | | WATER-POWER.[1] | AUXILIARY STEAM ENGINES. | | BOILERS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | |
| | | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | H. P. | No. | H. P. | No. | H. P. |
| | UNITED STATES | 805 | 2,336 | 1,298,133 | 1,589 | 421,051 | 430 | 297,257 | 317 | 579,825 | [2]51,228 | 301 | 10,074 | 3,853 | 893,205 |
| | ALABAMA. | | | | | | | | | | | | | | |
| | Total for state | 6 | 33 | 12,345 | 25 | 6,495 | 6 | 3,450 | 2 | 2,400 | | 2 | 5 | 47 | 9,535 |
| 1 | Anniston Electric and Gas | 1 | 2 | 400 | 2 | 400 | | | | | | 2 | 5 | 2 | 225 |
| 2 | Birmingham Railway, Light and Power | 1 | 15 | 8,220 | 9 | 3,420 | 4 | 2,400 | 2 | 2,400 | | | | 28 | 6,150 |
| 3 | Decatur Street Railway | | | | | | | | | | | | | | |
| 4 | Alabama City, Gadsden and Attalla | 1 | 3 | 425 | 3 | 425 | | | | | | | | 4 | 450 |
| 5 | Huntsville Railway, Light and Power | 1 | 2 | 300 | 2 | 300 | | | | | | | | 3 | 360 |
| 6 | Mobile Light and Railroad | 2 | 11 | 3,000 | 9 | 1,950 | 2 | 1,050 | | | | | | 10 | 2,350 |
| 7 | Montgomery Street Railway | | (5) | | | | | | | | | | | | |
| 8 | Selma Street and Suburban[6] | | | | | | | | | | | | | | |
| 9 | Tuscaloosa Belt Railway | | | | | | | | | | | | | | |
| | ARIZONA. | | | | | | | | | | | | | | |
| | Total for territory | 1 | 1 | 250 | 1 | 250 | | | | | | | | 3 | 300 |
| 1 | Phoenix Railway | 1 | 1 | 250 | 1 | 250 | | | | | | | | 3 | 300 |
| 2 | Tucson Street Railway | | | | | | | | | | | | | | |
| | ARKANSAS. | | | | | | | | | | | | | | |
| | Total for state | 5 | 11 | 2,365 | 11 | 2,365 | | | | | | | | 16 | 3,155 |
| 1 | Citizens Electric | 1 | 1 | 165 | 1 | 165 | | | | | | | | 2 | 180 |
| 2 | Fort Smith Traction | 1 | 3 | 400 | 3 | 400 | | | | | | | | 3 | 375 |
| 3 | Fort Smith and Van Buren | 1 | 1 | 150 | 1 | 150 | | | | | | | | 1 | 150 |
| 4 | Hot Springs Street Railroad[6] | | | | | | | | | | | | | | |
| 5 | Little Rock Traction and Electric | 1 | 2 | 900 | 2 | 900 | | | | | | | | 6 | 1,850 |
| 6 | Citizens Light and Transit | 1 | 4 | 750 | 4 | 750 | | | | | | | | 4 | 600 |
| 7 | Texarkana Railway | | | | | | | | | | | | | | |
| | CALIFORNIA. | | | | | | | | | | | | | | |
| | Total for state | 33 | 71 | 31,415 | 46 | 10,850 | 19 | 13,115 | 6 | 7,450 | [10]6,820 | 30 | 302 | 152 | 30,276 |
| 1 | Bakersfield and Kern Electric[6] | | | | | | | | | | | | | | |
| 2 | Fresno, Belmont and Yosemite | | | | | | | | | | | | | | |
| 3 | Fresno Railroad | | | | | | | | | | | | | | |
| 4 | Nevada County Traction | 1 | (5) | | | | | | | | | | | | |
| 5 | Los Angeles Electric Incline[6] | | | | | | | | | | | | | | |
| 6 | Los Angeles Railway | 1 | 5 | 4,050 | 1 | 250 | 2 | 1,150 | 2 | 2,650 | | | | 10 | 2,500 |
| 7 | Los Angeles and Pasadena | 1 | 5 | 1,350 | 4 | 700 | 1 | 650 | | | 45 | | | 4 | 700 |
| 8 | Los Angeles Pacific Railway | 2 | 4 | 1,650 | 3 | 1,050 | 1 | 600 | | | | 1 | 15 | 6 | 1,650 |
| 9 | Pacific Electric Railway[6] | 1 | 2 | 275 | 2 | 275 | | | | | | | | 2 | 300 |
| 10 | Los Angeles Traction | 1 | 3 | 1,000 | 3 | 1,000 | | | | | | | | 4 | 1,000 |
| 11 | Marysville and Yuba City | | | | | | | | | | | | | | |
| 12 | Monrovia Street Railway | | | | | | | | | | | | | | |
| 13 | Monterey and Pacific Grove | | | | | | | | | | | | | | |
| 14 | Oakland Transit Consolidated | 3 | 10 | 2,750 | 10 | 2,750 | | | | | | | | 10 | 2,500 |
| 15 | Ontario and San Antonio Heights | 1 | | | | | | | | | 200 | | | | |
| 16 | Pasadena and Mt. Lowe[6] | 1 | | | | | | | | | [12]100 | | | | |
| 17 | Paso Robles Street Car | | | | | | | | | | | | | | |
| 18 | Petaluma Street Railway | | | | | | | | | | | | | | |
| 19 | Pomona Street Railway | | | | | | | | | | | | | | |
| 20 | Redlands Street Railway[6] | | | | | | | | | | | | | | |
| 21 | Riverside and Arlington[6] | | | | | | | | | | | | | | |
| 22 | Sacramento Electric, Gas and Railway | 1 | 1 | 565 | | | 1 | 565 | | | 6,250 | | | 2 | 700 |
| 23 | San Bernardino Valley[6] | 1 | | | | | | | | | | | | | |
| 24 | San Diego Electric Railway | 1 | 2 | 500 | 2 | 500 | | | | | | | | 3 | 321 |
| 25 | Geary Street, Park and Ocean | 1 | 2 | 500 | 2 | 500 | | | | | | 3 | 25 | 5 | 750 |
| 26 | California Street Cable | 1 | 1 | 600 | | | 1 | 600 | | | | 6 | 75 | 4 | 500 |
| 27 | Presidio and Ferries | 1 | 2 | 400 | 2 | 400 | | | | | | 8 | 50 | 3 | 300 |
| 28 | United Railroads of San Francisco | 10 | 30 | 17,050 | 13 | 2,700 | 13 | 9,550 | 4 | 4,800 | | 8 | 92 | 94 | 18,605 |
| 29 | San Jose Railroad[6] | 1 | [14]2 | 325 | 2 | 325 | | | | | | [14]2 | 20 | [14]2 | 200 |
| 30 | San Jose and Santa Clara | 2 | [14]2 | 400 | 2 | 400 | | | | | [13]75 | [14]2 | 25 | [14]3 | 250 |
| 31 | Santa Barbara Consolidated[6] | 1 | | | | | | | | | | | | | |
| 32 | Santa Cruz Electric[6] | 1 | | | | | | | | | [16]150 | | | | |
| 33 | East Santa Cruz | | | | | | | | | | | | | | |
| 34 | Santa Rosa Street Railway | | | | | | | | | | | | | | |
| 35 | Stockton Electric | | (5) | | | | | | | | | | | | |
| | COLORADO. | | | | | | | | | | | | | | |
| | Total for state | 11 | 32 | 9,710 | 28 | 6,410 | 3 | 2,100 | 1 | 1,200 | 250 | 2 | 75 | 54 | 8,845 |
| 1 | Boulder Railway and Utility | 1 | 4 | 385 | 4 | 385 | | | | | | | | 4 | 400 |
| 2 | Colorado Springs and Cripple Creek | 2 | 1 | 380 | 1 | 380 | | | | | 250 | | | 3 | 300 |
| 3 | Colorado Springs Rapid Transit | 1 | 3 | 600 | 3 | 600 | | | | | | | | 5 | 600 |
| 4 | Denver, Lakewood and Golden[6] | | | | | | | | | | | | | | |
| 5 | Denver City Tramway | 6 | 19 | 4,745 | 18 | 4,145 | 1 | 600 | | | | | | 33 | 5,330 |
| 6 | Durango Railway and Realty[6] | | | | | | | | | | | | | | |
| 7 | Grand Junction (municipal) | | | | | | | | | | | | | | |
| 8 | Pueblo Traction and Lighting | 1 | 5 | 3,600 | 2 | 900 | 2 | 1,500 | 1 | 1,200 | | 2 | 75 | 9 | 2,215 |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] Includes 1 electric motor of 150 horsepower and 15 gas engines of 1,925 horsepower.
[4] For 6 companies only.
[5] Steam power rented.
[6] Power rented.
[7] For 5 companies only, and includes 2 companies operating part of year.
[8] For 9 months only.
[9] For 9½ months only.

PLANTS, BY COMPANIES: 1902.

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[2] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | No. | H. P. | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| 2,861 | 972,314 | 2,324 | 422,924 | 328 | 218,934 | 209 | 330,456 | 441 | 231,924 | See p. 397 | See p. 401 | 2,261,484,397 | 6,249,910 | 3,018,320,717 | 8,338,190 | ..... | |
| 54 | 10,775 | 49 | 5,625 | 2 | 1,025 | 3 | 4,125 | 11 | 1,787 | See p. 397 | See p. 401 | [4]15,600,556 | 42,714 | [4]20,845,880 | 57,112 | ..... | |
| 2 | 500 | 2 | 500 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 397 | ..... | 216,445 | 593 | 288,715 | 791 | No | 1 |
| 29 | 6,492 | 26 | 2,367 | ..... | ..... | 3 | 4,125 | 4 | 712 | ..... | See p. 401 | 8,233,396 | 22,580 | 11,023,365 | 30,201 | Yes | 2 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 3 |
| 4 | 425 | 4 | 425 | ..... | ..... | ..... | ..... | 1 | 75 | ..... | ..... | 803,000 | 2,200 | 1,070,545 | 2,933 | Yes | 4 |
| 3 | 458 | 3 | 458 | ..... | ..... | ..... | ..... | 2 | 140 | ..... | ..... | 690,215 | 1,891 | 920,165 | 2,521 | Yes | 5 |
| 10 | 2,400 | 8 | 1,375 | 2 | 1,025 | ..... | ..... | 4 | 810 | See p. 397 | ..... | 4,489,500 | 12,300 | 5,986,000 | 16,400 | Yes | 6 |
| 6 | 500 | 6 | 500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,168,000 | 3,200 | 1,557,090 | 4,266 | No | 7 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 8 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 9 |
| 3 | 160 | 3 | 160 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 459,900 | 1,260 | 616,485 | 1,689 | ..... | |
| 3 | 160 | 3 | 160 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 459,900 | 1,260 | 616,485 | 1,689 | Yes | 1 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 2 |
| 14 | 2,060 | 14 | 2,060 | ..... | ..... | ..... | ..... | 3 | 466 | See p. 397 | ..... | [7]4,578,675 | 13,508 | [7]6,104,992 | 18,012 | ..... | |
| 2 | 210 | 2 | 210 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [8]601,702 | 2,198 | [8]802,361 | 2,931 | Yes | 1 |
| 4 | 400 | 4 | 400 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 674,702 | 1,848 | 899,603 | 2,464 | Yes | 2 |
| 1 | 150 | 1 | 150 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 29,108 | 79 | 38,811 | 106 | No | 3 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 4 |
| 5 | 900 | 5 | 900 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2,656,105 | 7,277 | 3,541,473 | 9,703 | Yes | 5 |
| 2 | 400 | 2 | 400 | ..... | ..... | ..... | ..... | 3 | 466 | See p. 397 | ..... | [9]617,058 | 2,106 | [9]822,744 | 2,808 | Yes | 6 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 7 |
| 96 | 25,603 | 80 | 14,636 | 14 | 8,717 | 2 | 2,250 | 6 | 5,090 | See p. 397 | See p. 401 | [11]44,676,030 | 122,399 | [11]59,583,064 | 163,240 | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 1 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 2 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 3 |
| 2 | 400 | 2 | 400 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 397 | ..... | 305,505 | 837 | 407,340 | 1,116 | No | 4 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 5 |
| 6 | 5,500 | ..... | ..... | 4 | 3,250 | 2 | 2,250 | ..... | ..... | ..... | ..... | 8,741,827 | 23,950 | 11,655,769 | 31,933 | Yes | 6 |
| 6 | 1,370 | 6 | 1,370 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 397 | See p. 401 | 2,098,509 | 5,749 | 2,813,014 | 7,706 | Yes | 7 |
| 6 | 1,933 | 6 | 1,933 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 397 | ..... | ..... | ..... | ..... | ..... | Yes | 8 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 9 |
| 3 | 1,200 | 2 | 533 | 1 | 667 | ..... | ..... | ..... | ..... | ..... | ..... | 2,956,500 | 8,100 | 3,942,000 | 10,800 | No | 10 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 11 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 12 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 13 |
| 10 | 2,900 | 10 | 2,900 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9,330,164 | 25,562 | 12,440,219 | 34,083 | Yes | 14 |
| 1 | 100 | 1 | 100 | ..... | ..... | ..... | ..... | 1 | 90 | See p. 397 | ..... | 146,000 | 400 | 194,667 | 534 | Yes | 15 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 16 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 17 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 18 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 19 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 397 | See p. 401 | ..... | ..... | ..... | ..... | No | 20 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 21 |
| 13 | 1,125 | 13 | 1,125 | ..... | ..... | ..... | ..... | 5 | 5,000 | See p. 397 | See p. 401 | 1,652,856 | 4,528 | 2,203,708 | 6,037 | Yes | 22 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 397 | ..... | ..... | ..... | ..... | ..... | No | 23 |
| 5 | 770 | 5 | 770 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 397 | ..... | 730,000 | 2,000 | 973,455 | 2,667 | No | 24 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 25 |
| [13]1 | 10 | 1 | 10 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 26 |
| [13]1 | 15 | 1 | 15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 27 |
| 32 | 9,167 | 23 | 4,367 | 9 | 4,800 | ..... | ..... | ..... | ..... | See p. 397 | See p. 401 | 17,634,975 | 48,315 | 23,513,300 | 64,420 | Yes | 28 |
| [14]3 | 280 | 3 | 280 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 29 |
| 3 | 366 | 3 | 366 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 397 | ..... | [16]574,600 | 1,574 | [15]766,133 | 2,099 | No | 30 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 31 |
| 2 | 227 | 2 | 227 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 32 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 33 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 34 |
| 2 | 240 | 2 | 240 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 505,094 | 1,384 | 673,459 | 1,845 | No | 35 |
| 37 | 6,720 | 36 | 6,053 | 1 | 667 | ..... | ..... | 6 | 1,691 | See p. 397 | ..... | [17]17,856,576 | 48,929 | [17]23,812,768 | 65,239 | ..... | |
| 3 | 150 | 3 | 150 | ..... | ..... | ..... | ..... | 2 | 185 | ..... | ..... | ..... | ..... | ..... | ..... | Yes | 1 |
| 1 | 308 | 1 | 308 | ..... | ..... | ..... | ..... | 1 | 306 | See p. 397 | ..... | 1,095,000 | 3,000 | 1,460,000 | 4,000 | No | 2 |
| 3 | 600 | 3 | 600 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 397 | ..... | 2,299,500 | 6,300 | 3,066,000 | 8,400 | No | 3 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 4 |
| 26 | 4,662 | 25 | 3,995 | 1 | 667 | ..... | ..... | ..... | ..... | ..... | ..... | 11,600,000 | 31,780 | 15,466,667 | 42,373 | No | 5 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 6 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No | 7 |
| 4 | 1,000 | 4 | 1,000 | ..... | ..... | ..... | ..... | 3 | 1,200 | See p. 397 | ..... | 2,865,076 | 7,849 | 3,820,101 | 10,466 | Yes | 8 |

[10] Includes 3 gas engines of 175 horsepower and 1 electric motor of 150 horsepower.
[11] For 11 companies only.
[12] Gas engines.
[13] Used for lighting purposes only.
[14] Not in use during period covered by report.
[15] This company also rents power.
[16] Electric motor.
[17] For 4 companies only.

TABLE 96.—POWER AND GENERATING

| Number. | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. Total. No. | Total. H. P. | 500 H. P. or under. No. | 500 H. P. or under. H. P. | Over 500 H. P. and under 1,000 H. P. No. | Over 500 H. P. and under 1,000 H. P. H. P. | 1,000 H. P. and over. No. | 1,000 H. P. and over. H. P. | WATER-POWER.[1] H. P. | AUXILIARY STEAM ENGINES. No. | AUXILIARY STEAM ENGINES. H. P. | BOILERS. No. | BOILERS. H. P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CONNECTICUT. | | | | | | | | | | | | | | |
| | Total for state | 22 | 73 | 30,450 | 60 | 18,600 | 6 | 4,150 | 7 | 7,700 | 646 | 4 | 150 | 105 | 20,316 |
| 1 | Branford Lighting and Water | 1 | 2 | 375 | 2 | 375 | | | | | | | | 4 | 400 |
| 2 | Connecticut Railway and Lighting | 6 | 28 | 10,900 | 26 | 8,500 | | | 2 | 2,400 | | | | 31 | 7,250 |
| 3 | Bristol and Plainville Tramway[4] | | | | | | | | | | | | | | |
| 4 | Danbury and Bethel | 1 | 2 | 675 | 2 | 675 | | | | | | | | 3 | 375 |
| 5 | Greenwich Tramway[4] | | | | | | | | | | | | | | |
| 6 | Hartford and Springfield | 2 | 2 | 1,000 | 2 | 1,000 | | | | | | | | 3 | 841 |
| 7 | Farmington Street Railway[4] | | | | | | | | | | | | | | |
| 8 | Hartford Street Railway | 1 | 9 | 3,700 | 8 | 2,400 | | | 1 | 1,300 | | | | 8 | 2,400 |
| 9 | Hartford, Manchester and Rockville | 1 | 3 | 1,200 | 3 | 1,200 | | | | | | 4 | 150 | 4 | 900 |
| 10 | New York, New Haven and Hartford (Berlin system). | 1 | 2 | 2,000 | | | | | 2 | 2,000 | | | | 10 | 1,500 |
| 11 | Meriden, Southington and Compounce | 1 | 2 | 500 | 2 | 500 | | | | | | | | 3 | 450 |
| 12 | Meriden Electric Railroad | 1 | 3 | 450 | 3 | 450 | | | | | | | | 3 | 300 |
| 13 | Middletown Street Railway[4] | | | | | | | | | | | | | | |
| 14 | Manufacturers Railroad[4] | | | | | | | | | | | | | | |
| 15 | Fair Haven and Westville | 2 | 11 | 4,550 | 7 | 1,950 | 4 | 2,600 | | | | | | 19 | 2,850 |
| 16 | New London Street Railway | 1 | 2 | 800 | 2 | 800 | | | | | | | | 2 | 500 |
| 17 | Montville Street Railway | 1 | 2 | 1,100 | 1 | 350 | 1 | 750 | | | | | | 3 | 750 |
| 18 | Norwich Street Railway[4] | | | | | | | | | | | | | | |
| 19 | Peoples Tramway | 2 | 1 | 800 | | | 1 | 800 | | | 646 | | | 4 | 600 |
| 20 | Stamford Street Railroad[4] | | | | | | | | | | | | | | |
| 21 | New York, New Haven and Hartford (New Canaan branch). | | 2 | 2,000 | | | | | 2 | 2,000 | | | | 6 | 900 |
| 22 | Suffield Street Railway | | ([5]) | | | | | | | | | | | | |
| 23 | Torrington and Winchester | 1 | 2 | 400 | 2 | 400 | | | | | | | | 2 | 300 |
| | DELAWARE. | | | | | | | | | | | | | | |
| | Total for state | 5 | 18 | 5,725 | 15 | 3,025 | 2 | 1,200 | 1 | 1,500 | | 1 | 75 | 20 | 4,600 |
| 1 | Wilmington and New Castle | 1 | 4 | 525 | 4 | 525 | | | | | | 1 | 75 | 2 | 500 |
| 2 | Peoples Railway | 1 | 5 | 2,100 | 3 | 900 | 2 | 1,200 | | | | | | 4 | 1,500 |
| 3 | Wilmington City | 3 | 9 | 3,100 | 8 | 1,600 | | | 1 | 1,500 | | | | 14 | 2,600 |
| | DISTRICT OF COLUMBIA. | | | | | | | | | | | | | | |
| | Total for district | 5 | 22 | 11,050 | 12 | 2,850 | 9 | 7,000 | 1 | 1,200 | | 8 | 240 | 27 | 8,652 |
| 1 | Anacostia and Potomac River[4] | | | | | | | | | | | | | | |
| 2 | Brightwood Railway[6] | | | | | | | | | | | | | | |
| 3 | Capital Traction | 2 | 10 | 5,000 | 5 | 1,000 | 5 | 4,000 | | | | 5 | 125 | 11 | 3,392 |
| 4 | City and Suburban of Washington[4] | | | | | | | | | | | | | | |
| 5 | Columbia Railway | 1 | 5 | 1,250 | 4 | 500 | 1 | 750 | | | | 1 | 25 | 4 | 1,000 |
| 6 | Georgetown and Tennallytown[4] | | | | | | | | | | | | | | |
| 7 | Metropolitan Railroad | 2 | 7 | 4,800 | 3 | 1,350 | 3 | 2,250 | 1 | 1,200 | | 2 | 90 | 12 | 4,260 |
| 8 | Washington and Great Falls[4] | | | | | | | | | | | | | | |
| | FLORIDA. | | | | | | | | | | | | | | |
| | Total for state | 4 | 12 | 2,595 | 12 | 2,595 | | | | | 1,400 | | | 17 | 2,925 |
| 1 | Fort Meade Street Railway | | | | | | | | | | | | | | |
| 2 | Jacksonville Electric | 1 | 3 | 850 | 3 | 850 | | | | | | | | 5 | 1,250 |
| 3 | Key West Electric | 1 | 4 | 575 | 4 | 575 | | | | | | | | 5 | 750 |
| 4 | Palatka and Heights Street Railway | | | | | | | | | | | | | | |
| 5 | Pensacola Electric Terminal | 1 | 3 | 420 | 3 | 420 | | | | | | | | 2 | 300 |
| 6 | Tampa Electric | 1 | 2 | 750 | 2 | 750 | | | | | 1,400 | | | 5 | 625 |
| | GEORGIA. | | | | | | | | | | | | | | |
| | Total for state | 12 | 35 | 23,000 | 20 | 4,800 | 6 | 4,200 | 9 | 14,000 | 5,470 | 3 | 45 | 51 | 13,850 |
| 1 | Athens Electric Railway | 1 | 1 | 100 | 1 | 100 | | | | | 1,050 | | | 2 | 150 |
| 2 | Georgia Railway and Electric | 2 | 10 | 14,500 | 1 | 500 | | | 9 | 14,000 | | 3 | 45 | 20 | 6,650 |
| 3 | Augusta Railway and Electric | 2 | 5 | 2,500 | 2 | 500 | 3 | 2,000 | | | 3,220 | | | 6 | 3,000 |
| 4 | Columbus Railroad | 2 | 3 | 400 | 3 | 400 | | | | | 1,200 | | | 3 | 400 |
| 5 | Covington and Oxford | | | | | | | | | | | | | | |
| 6 | Macon Railway and Light | 2 | 4 | 1,450 | 3 | 850 | 1 | 600 | | | | | | 5 | 950 |
| 7 | City Electric Railway | 1 | 4 | 500 | 4 | 500 | | | | | | | | 3 | 600 |
| 8 | Savannah Electric | 2 | 8 | 3,550 | 6 | 1,950 | 2 | 1,600 | | | | | | 12 | 2,100 |
| 9 | Valdosta Street Railway[4] | | | | | | | | | | | | | | |
| 10 | Washington Street Railway | | | | | | | | | | | | | | |
| | IDAHO. | | | | | | | | | | | | | | |
| | Total for state | 1 | | | | | | | | | 60 | | | | |
| 1 | Boise Rapid Transit | 1 | | | | | | | | | 60 | | | | |
| | ILLINOIS. | | | | | | | | | | | | | | |
| | Total for state | 56 | 179 | 132,255 | 91 | 24,255 | 37 | 25,600 | 51 | 82,400 | [13]950 | 43 | 1,889 | 371 | 91,667 |
| 1 | Alton Railway, Gas and Electric | 1 | 2 | 1,050 | 1 | 350 | 1 | 700 | | | | | | 9 | 900 |
| 2 | Elgin, Aurora and Southern | 2 | 14 | 2,825 | 13 | 2,225 | 1 | 600 | | | | | | 14 | 1,935 |
| 3 | Bloomington and Normal | 1 | 2 | 1,000 | 1 | 400 | 1 | 600 | | | | | | 2 | 600 |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] For 15 companies only, and includes 1 company operating part of year.
[4] Power rented.
[5] Steam power rented.
[6] For 5 months only.
[7] For 4 companies only, and includes 1 company operating part of year.
[8] Power rented for 5 months. (See note 9.)

PLANTS, BY COMPANIES: 1902—Continued.

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[2] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| 102 | 27,479 | 91 | 17,641 | 6 | 4,240 | 5 | 5,598 | 16 | 3,160 | See p. 397 | See p. 401 | [3]54,389,973 | 149,342 | [3]72,496,311 | 199,112 | | |
| 1 | 34 | 1 | 34 | | | | | 2 | 300 | | | 714,212 | 1,957 | 952,282 | 2,609 | Yes | 1 |
| 52 | 9,226 | 50 | 7,106 | | | 2 | 2,120 | 13 | 2,320 | See p. 397 | | 13,482,530 | 36,938 | 17,953,371 | 49,251 | Yes | 2 |
| | | | | | | | | | | | | | | | | No | 3 |
| 4 | 500 | 4 | 500 | | | | | | | | | 903,870 | 2,476 | 1,205,160 | 3,301 | Yes | 4 |
| | | | | | | | | | | | | | | | | No | 5 |
| 2 | 800 | 2 | 800 | | | | | | | | | 919,400 | 2,519 | 1,225,866 | 3,358 | No | 6 |
| | | | | | | | | | | | | | | | | No | 7 |
| 9 | 3,600 | 8 | 2,400 | | | 1 | 1,200 | | | | | 8,309,370 | 22,765 | 11,078,966 | 30,353 | Yes | 8 |
| 3 | 1,100 | 3 | 1,100 | | | | | | | See p. 397 | | 1,095,000 | 3,000 | 1,460,000 | 4,000 | Yes | 9 |
| 2 | 2,278 | | | | | 2 | 2,278 | | | See p. 397 | | 1,896,540 | 5,196 | 2,528,720 | 6,928 | No | 10 |
| 2 | 400 | 2 | 400 | | | | | | | | | 441,216 | 1,208 | 588,288 | 1,603 | No | 11 |
| 3 | 400 | 3 | 400 | | | | | | | | | 956,376 | 2,620 | 1,274,945 | 3,493 | Yes | 12 |
| 3 | 250 | 3 | 250 | | | | | | | | | | | | | No | 13 |
| | | | | | | | | | | | | | | | | No | 14 |
| 12 | 4,833 | 9 | 2,733 | 3 | 2,100 | | | | | See p. 397 | | 23,347,225 | 63,965 | 31,129,633 | 85,287 | No | 15 |
| 2 | 800 | 2 | 800 | | | | | | | | | 589,460 | 1,615 | 785,947 | 2,153 | Yes | 16 |
| 2 | 1,200 | 1 | 400 | 1 | 800 | | | | | See p. 397 | | 372,974 | 1,021 | 497,299 | 1,361 | Yes | 17 |
| | | | | | | | | | | | | | | | | No | 18 |
| | | | | | | | | 1 | 540 | See p. 397 | See p. 401 | 693,500 | 1,900 | 924,667 | 2,533 | No | 19 |
| | | | | | | | | | | | | | | | | No | 20 |
| 2 | 1,340 | | | 2 | 1,340 | | | | | | | | | | | No | 21 |
| 1 | 268 | 1 | 268 | | | | | | | | | [6]84,300 | 562 | [6]112,500 | 749 | No | 22 |
| 2 | 450 | 2 | 450 | | | | | | | | | 584,000 | 1,600 | 778,667 | 2,133 | No | 23 |
| 21 | 4,569 | 20 | 2,569 | | | 1 | 2,000 | | | See p. 397 | | 7,730,899 | 21,180 | 10,307,866 | 28,240 | | |
| 2 | 400 | 2 | 400 | | | | | | | See p. 397 | | 1,250,490 | 3,426 | 1,667,320 | 4,568 | Yes | 1 |
| 5 | 800 | 5 | 800 | | | | | | | See p. 397 | | 2,555,000 | 7,000 | 3,406,667 | 9,333 | No | 2 |
| 14 | 3,369 | 13 | 1,369 | | | 1 | 2,000 | | | See p. 397 | | 3,925,409 | 10,754 | 5,233,879 | 14,339 | No | 3 |
| 25 | 10,525 | 15 | 2,825 | 9 | 6,500 | 1 | 1,200 | | | See p. 397 | See p. 401 | [7]23,391,015 | 65,160 | [7]31,188,020 | 86,880 | | |
| | | | | | | | | | | | | | | | | No | 1 |
| | | | | | | | | | | | See p. 401 | | | | | No | 2 |
| 13 | 4,475 | 8 | 975 | 5 | 3,500 | | | | | See p. 397 | | 7,833,938 | 21,463 | 10,445,251 | 28,617 | No | 3 |
| | | | | | | | | | | | See p. 401 | | | | | No | 4 |
| 5 | 1,250 | 4 | 500 | 1 | 750 | | | | | See p. 397 | | 2,057,370 | 5,636 | 2,743,160 | 7,515 | No | 5 |
| | | | | | | | | | | | | | | | | No | 6 |
| 7 | 4,800 | 3 | 1,350 | 3 | 2,250 | 1 | 1,200 | | | See p. 397 | | [9]13,499,707 | 38,061 | [9]17,999,609 | 50,748 | No | 7 |
| | | | | | | | | | | | | | | | | No | 8 |
| 11 | 1,700 | 11 | 1,700 | | | | | 11 | 2,313 | | See p. 401 | [10]5,184,495 | 15,128 | [10]6,912,456 | 20,170 | | |
| | | | | | | | | | | | | | | | | No | 1 |
| 6 | 1,044 | 6 | 1,044 | | | | | 2 | 400 | | | [11]1,748,484 | 5,714 | [11]2,331,108 | 7,618 | Yes | 2 |
| 2 | 256 | 2 | 256 | | | | | 5 | 413 | | | 175,511 | 481 | 234,015 | 641 | Yes | 3 |
| | | | | | | | | | | | | | | | | No | 4 |
| 3 | 400 | 3 | 400 | | | | | | | | | 492,750 | 1,350 | 657,000 | 1,800 | Yes | 5 |
| | | | | | | | | 4 | 1,500 | | See p. 401 | 2,767,750 | 7,583 | 3,690,333 | 10,111 | Yes | 6 |
| 58 | 15,042 | 52 | 8,112 | 4 | 2,880 | 2 | 4,050 | 20 | 7,643 | See p. 397 | See p. 401 | [12]34,233,902 | 93,791 | [12]45,645,112 | 125,055 | | |
| 2 | 305 | 2 | 305 | | | | | 1 | 335 | | | 317,445 | 870 | 423,260 | 1,160 | Yes | 1 |
| 7 | 6,516 | 5 | 2,466 | | | 2 | 4,050 | 3 | 3,480 | See p. 397 | See p. 401 | 22,190,232 | 60,795 | 29,586,976 | 81,060 | Yes | 2 |
| 8 | 2,650 | 5 | 650 | 3 | 2,000 | | | 2 | 1,200 | See p. 397 | | 3,830,936 | 10,496 | 5,107,913 | 13,995 | Yes | 3 |
| 7 | 836 | 7 | 836 | | | | | 7 | 1,055 | See p. 397 | | 629,625 | 1,725 | 839,500 | 2,300 | Yes | 4 |
| | | | | | | | | | | | | | | | | No | 5 |
| 8 | 1,050 | 8 | 1,050 | | | | | 3 | 560 | | | 1,234,112 | 3,381 | 1,645,483 | 4,508 | Yes | 6 |
| 4 | 340 | 4 | 340 | | | | | 2 | 213 | | | 1,030,151 | 2,822 | 1,373,495 | 3,763 | Yes | 7 |
| 22 | 3,345 | 21 | 2,465 | 1 | 880 | | | 2 | 800 | | | 5,001,401 | 13,702 | 6,668,485 | 18,269 | Yes | 8 |
| | | | | | | | | | | | | | | | | No | 9 |
| | | | | | | | | | | | | | | | | No | 10 |
| 1 | 75 | 1 | 75 | | | | | | | | | 219,500 | 601 | 292,667 | 801 | | |
| 1 | 75 | 1 | 75 | | | | | | | | | 219,500 | 601 | 292,667 | 801 | Yes | 1 |
| 181 | 98,458 | 115 | 22,137 | 34 | 23,825 | 32 | 52,496 | 11 | 2,750 | See p. 397 | See p. 401 | [14]190,833,658 | 527,024 | [14]254,508,402 | 702,903 | | |
| 3 | 1,050 | 2 | 350 | 1 | 700 | | | | | | | 1,095,000 | 3,000 | 1,460,000 | 4,000 | No | 1 |
| 23 | 2,975 | 22 | 2,425 | 1 | 550 | | | | | See p. 397 | | 5,093,216 | 13,954 | 6,790,013 | 18,605 | Yes | 2 |
| 2 | 1,000 | 2 | 1,000 | | | | | | | | | [15]930,750 | 5,058 | [15]1,241,000 | 6,744 | No | 3 |

[9] Includes output of Brightwood Railway for 7 months.
[10] For 4 companies only, and includes 1 company operating part of year.
[11] For 10 months only.
[12] For 7 companies only.
[13] Includes 5 gas engines of 400 horsepower.
[14] For 34 companies only, and includes 6 companies operating part of year.
[15] For 6 months only.

TABLE 96.—POWER AND GENERATING

| Number. | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. | | | | | | | | WATER-POWER.[1] | AUXILIARY STEAM ENGINES. | | BOILERS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | |
| | | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | H. P. | No. | H. P. | No. | H. P. |
| | ILLINOIS—Continued. | | | | | | | | | | | | | | |
| 4 | Mechanicsburg and Buffalo | | | | | | | | | | | | | | |
| 5 | Cairo Electric Railway | | ([3]) | | | | | | | | | | | | |
| 6 | Egypt Electric | 1 | 2 | 300 | 2 | 300 | | | | | | | | 3 | 300 |
| 7 | Centralia and Central City | | | | | | | | | | | | | | |
| 8 | Urbana and Champaign | 1 | 2 | 400 | 2 | 400 | | | | | | 1 | 200 | 2 | 500 |
| 9 | Chicago City Railway | 5 | 28 | 23,500 | 4 | 1,400 | 14 | 8,500 | 10 | 13,600 | | 5 | 300 | 58 | 14,650 |
| 10 | Chicago Union Traction | 10 | 30 | 28,550 | 11 | 3,250 | 8 | 7,200 | 11 | 18,100 | [4]400 | 27 | 1,015 | 98 | 17,455 |
| 11 | Chicago Consolidated Traction | 3 | 12 | 9,150 | 4 | 1,200 | 1 | 750 | 7 | 7,200 | | 1 | 25 | 23 | 6,400 |
| 12 | Calumet Electric Street Railway | 1 | 5 | 2,100 | 4 | 1,300 | 1 | 800 | | | | 1 | 150 | 8 | 2,000 |
| 13 | Chicago Electric Traction | 1 | 4 | 1,100 | 4 | 1,100 | | | | | | 1 | 125 | 4 | 650 |
| 14 | Chicago General Railway | 1 | 2 | 800 | 2 | 800 | | | | | | | | 3 | 900 |
| 15 | Chicago General Electric Railway[5] | | | | | | | | | | | | | | |
| 16 | Suburban Railroad[5] | 1 | [6]2 | 750 | 2 | 750 | | | | | | | | [6]3 | 900 |
| 17 | Northwestern Elevated Railroad | 2 | 8 | 17,700 | | | | | 8 | 17,700 | | 2 | 50 | 28 | 11,440 |
| 18 | South Side Elevated Railroad | 1 | 6 | 9,900 | | | | | 6 | 9,900 | | | | 12 | 4,800 |
| 19 | Metropolitan West Side Elevated | 1 | 7 | 13,500 | | | | | 7 | 13,500 | | | | 26 | 13,000 |
| 20 | South Chicago City Railway | 1 | 4 | 1,600 | 3 | 900 | 1 | 700 | | | | | | 3 | 900 |
| 21 | Chicago and Milwaukee | 3 | 2 | 1,800 | | | 1 | 600 | 1 | 1,200 | | 1 | 10 | 4 | 800 |
| 22 | Lake Street Elevated Railroad[5] | 1 | | | | | | | | | | | | | |
| 23 | Chicago and Joliet[5] | | | | | | | | | | | | | | |
| 24 | Northern Electric Railway | 1 | 1 | 100 | 1 | 100 | | | | | | | | 1 | 100 |
| 25 | Danville Railway and Light | 1 | 10 | 3,300 | 9 | 2,100 | | | 1 | 1,200 | | 2 | 10 | 11 | 3,300 |
| 26 | Danville, Paxton and Northern[5] | | | | | | | | | | | | | | |
| 27 | Decatur Traction and Electric | 1 | 2 | 700 | 2 | 700 | | | | | | | | 2 | 700 |
| 28 | East St. Louis Railway | 1 | 2 | 1,200 | | | 2 | 1,200 | | | | | | 8 | 1,250 |
| 29 | St. Louis and Belleville[5] | | | | | | | | | | | | | | |
| 30 | East St. Louis and Suburban | 2 | 3 | 2,000 | | | 3 | 2,000 | | | | | | 10 | 1,500 |
| 31 | St. Louis and East St. Louis[5] | | | | | | | | | | | | | | |
| 32 | Granite City and St. Louis | 1 | 2 | 1,100 | 1 | 350 | 1 | 750 | | | | | | 3 | 520 |
| 33 | Freeport Electric | 1 | 1 | 200 | 1 | 200 | | | | | | 2 | 4 | 1 | 175 |
| 34 | Galesburg Electric Motor | 1 | 3 | 550 | 3 | 550 | | | | | | | | 3 | 255 |
| 35 | Chicago, Harvard and Geneva Lake | 1 | 2 | 500 | 2 | 500 | | | | | | | | 2 | 500 |
| 36 | Jacksonville Railway[5] | | | | | | | | | | | | | | |
| 37 | Kankakee Electric Railway | 1 | 1 | 100 | 1 | 100 | | | | | | | | 2 | 150 |
| 38 | North Kankakee Light and Railway[5] | | | | | | | | | | | | | | |
| 39 | Lincoln Street Car | 1 | 1 | 150 | 1 | 150 | | | | | | | | 1 | 100 |
| 40 | Coal Belt Electric Railway | 1 | 2 | 700 | 2 | 700 | | | | | | | | 3 | 375 |
| 41 | Murphysboro Street Railway | | | | | | | | | | | | | | |
| 42 | Ottawa Railway, Light and Power | 1 | 3 | 775 | 3 | 775 | | | | | 550 | | | 2 | 500 |
| 43 | Peoria and Prospect Heights[5] | | | | | | | | | | | | | | |
| 44 | Central Railway | 1 | 5 | 1,600 | 5 | 1,600 | | | | | | | | 11 | 1,600 |
| 45 | Peoria and Pekin Terminal | 1 | 3 | 1,080 | 3 | 1,080 | | | | | | | | 3 | 750 |
| 46 | Quincy Horse Railway | 1 | 2 | 1,200 | | | 2 | 1,200 | | | | | | 5 | 750 |
| 47 | Rockford Railway, Light and Power[5] | | | | | | | | | | | | | | |
| 48 | Rockford and Belvidere[5] | | | | | | | | | | | | | | |
| 49 | Springfield Consolidated | 1 | 2 | 725 | 2 | 725 | | | | | | | | 6 | 800 |
| 50 | Peoples Light and Railway | 1 | 2 | 250 | 2 | 250 | | | | | | | | 2 | 212 |
| | INDIANA. | | | | | | | | | | | | | | |
| | Total for state | 25 | 58 | 26,580 | 43 | 10,880 | 10 | 6,850 | 5 | 8,850 | | 7 | 225 | 88 | 22,690 |
| 1 | Brownstown and Ewing | | | | | | | | | | | | | | |
| 2 | John S. Crump | 1 | 1 | 125 | 1 | 125 | | | | | | | | 2 | 160 |
| 3 | Evansville Electric Railway | 1 | 3 | 750 | 3 | 750 | | | | | | | | 3 | 750 |
| 4 | Fort Wayne Traction | 1 | 4 | 1,325 | 3 | 525 | 1 | 800 | | | | | | 6 | 1,000 |
| 5 | Fort Wayne and Southwestern | 1 | 1 | 800 | | | 1 | 800 | | | | | | 2 | 1,000 |
| 6 | Hammond, Whiting and East Chicago[5] | | | | | | | | | | | | | | |
| 7 | Indianapolis Street Railway | 2 | 7 | 5,350 | 2 | 500 | 3 | 2,000 | 2 | 2,850 | | | | 12 | 4,400 |
| 8 | Broad Ripple Traction[5] | | | | | | | | | | | | | | |
| 9 | Indianapolis, Shelbyville and Southeastern. | 2 | 1 | 800 | | | 1 | 800 | | | | 1 | 15 | 2 | 1,200 |
| 10 | Indianapolis and Eastern | 1 | 2 | 1,200 | | | 2 | 1,200 | | | | | | 3 | 1,650 |
| 11 | Union Traction | 1 | 4 | 6,100 | 1 | 100 | | | 3 | 6,000 | | 2 | 20 | 8 | 3,200 |
| 12 | Indianapolis, Greenwood and Franklin. | 1 | 2 | 750 | 2 | 750 | | | | | | | | 3 | 450 |
| 13 | Jeffersonville City Railway | | | | | | | | | | | | | | |
| 14 | Kokomo Railway and Light | 1 | 1 | 700 | | | 1 | 700 | | | | | | 2 | 500 |
| 15 | Lafayette Street Railway | 1 | 2 | 800 | 1 | 250 | 1 | 550 | | | | | | 3 | 750 |
| 16 | Logansport Railway | 1 | 2 | 250 | 2 | 250 | | | | | | | | 2 | 250 |
| 17 | Logansport, Rochester and Northern | 1 | 1 | 150 | 1 | 150 | | | | | | | | 2 | 160 |
| 18 | Madison Light and Railway | 1 | 4 | 725 | 4 | 725 | | | | | | | | 3 | 600 |
| 19 | Lake Cities | 1 | 1 | 200 | 1 | 200 | | | | | | | | 1 | 200 |
| 20 | Highland Railroad[5] | | | | | | | | | | | | | | |
| 21 | New Albany Street Railroad[5] | | | | | | | | | | | | | | |
| 22 | Richmond Street and Interurban | 1 | 2 | 1,000 | 2 | 1,000 | | | | | | | | 2 | 750 |
| 23 | Indiana Railway | 3 | 5 | 1,700 | 5 | 1,700 | | | | | | 1 | 150 | 12 | 1,450 |
| 24 | Terre Haute Electric | 2 | 11 | 2,880 | 11 | 2,880 | | | | | | 3 | 40 | 16 | 3,410 |
| 25 | Vincennes Citizens | 1 | 2 | 205 | 2 | 205 | | | | | | | | 2 | 180 |
| 26 | Wabash River Traction | 1 | 2 | 770 | 2 | 770 | | | | | | | | 2 | 630 |
| 27 | Washington Street Railway[5] | | | | | | | | | | | | | | |
| | IOWA. | | | | | | | | | | | | | | |
| | Total for state | 18 | 64 | 20,040 | 56 | 12,240 | 6 | 4,400 | 2 | 3,400 | | 1 | 35 | 98 | 16,755 |
| 1 | Boone Electric | 1 | 3 | 500 | 3 | 500 | | | | | | | | 3 | 400 |
| 2 | Burlington Railway and Light | 1 | 2 | 1,600 | | | 2 | 1,600 | | | | | | 8 | 1,600 |
| 3 | Cedar Rapids and Marion City | 1 | 3 | 600 | 3 | 600 | | | | | | | | 3 | 300 |
| 4 | Peoples Street Railway | | | | | | | | | | | | | | |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] Steam power rented.
[4] Gas engines.
[5] Power rented.
[6] Owned, but not operated.

PLANTS, BY COMPANIES: 1902—Continued.

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[2] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | No. | H. P. | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| | | | | | | | | | | | | | | | | No. | 4 |
| 2 | 160 | 2 | 160 | | | | | | | | | 876,000 | 2,400 | 1,168,000 | 3,200 | No. | 5 |
| 2 | 180 | 2 | 180 | | | | | 2 | 150 | | | 1,478,250 | 4,050 | 1,971,000 | 5,400 | Yes | 6 |
| | | | | | | | | | | | | | | | | No. | 7 |
| 4 | 560 | 4 | 560 | | | | | | | | | 503,700 | 1,380 | 671,600 | 1,840 | No. | 8 |
| 16 | 13,056 | | | 10 | 6,660 | 6 | 6,396 | | | See p. 397 | | 30,282,590 | 82,966 | 40,376,786 | 110,621 | No. | 9 |
| 11 | 15,860 | | | 5 | 4,260 | 6 | 11,600 | | | See p. 397 | | 35,322,686 | 96,774 | 47,096,915 | 129,065 | Yes | 10 |
| 12 | 7,230 | 5 | 1,750 | 4 | 2,480 | 3 | 3,000 | | | See p. 397 | | 20,827,934 | 57,063 | 27,770,579 | 76,084 | Yes | 11 |
| 5 | 2,100 | 4 | 1,300 | 1 | 800 | | | 1 | 150 | See p. 397 | | 2,575,335 | 7,055 | 3,452,191 | 9,457 | No. | 12 |
| 4 | 675 | 4 | 675 | | | | | | | See p. 397 | | 1,134,344 | 3,109 | 1,512,458 | 4,142 | No. | 13 |
| 2 | 800 | 2 | 800 | | | | | | | | | 2,007,500 | 5,500 | 2,676,545 | 7,333 | No. | 14 |
| | | | | | | | | | | | | | | | | No. | 15 |
| [6]2 | 750 | 2 | 750 | | | | | | | | | | | | | No. | 16 |
| 8 | 15,000 | | | | | 8 | 15,000 | | | | | 16,425,000 | 45,000 | 21,900,000 | 60,000 | No. | 17 |
| 6 | 6,200 | | | 4 | 3,200 | 2 | 3,000 | | | See p. 397 | | 21,528,996 | 58,983 | 28,705,328 | 78,644 | No. | 18 |
| 7 | 13,500 | | | | | 7 | 13,500 | | | | | 25,354,495 | 69,464 | 33,805,993 | 92,619 | No. | 19 |
| 4 | 1,600 | 3 | 900 | 1 | 700 | | | | | See p. 397 | | 3,098,950 | 8,490 | 4,154,222 | 11,380 | No. | 20 |
| 2 | 900 | 1 | 300 | 1 | 600 | | | 2 | 750 | See p. 397 | See p. 401 | 2,565,585 | 7,029 | 3,444,505 | 9,437 | No. | 21 |
| | | | | | | | | | | See p. 397 | See p. 401 | | | | | No. | 22 |
| | | | | | | | | | | | See p. 401 | | | | | No. | 23 |
| 1 | 550 | | | 1 | 550 | | | | | | | 109,500 | 300 | 146,000 | 400 | No. | 24 |
| 17 | 2,350 | 17 | 2,350 | | | | | 3 | 1,100 | | See p. 401 | 920,000 | 2,521 | 1,226,667 | 3,361 | Yes | 25 |
| | | | | | | | | | | | | | | | | No. | 26 |
| 2 | 600 | 2 | 600 | | | | | | | | | 460,995 | 1,263 | 614,660 | 1,684 | No. | 27 |
| 2 | 1,000 | 2 | 1,000 | | | | | | | | | 3,285,000 | 9,000 | 4,380,000 | 12,000 | No. | 28 |
| | | | | | | | | | | | | | | | | No. | 29 |
| 3 | 2,000 | | | 3 | 2,000 | | | | | | | 6,570,000 | 18,000 | 8,760,000 | 24,000 | No. | 30 |
| | | | | | | | | | | | | | | | | No. | 31 |
| 2 | 950 | 1 | 275 | 1 | 675 | | | | | | | [7]292,800 | 1,600 | [7]390,400 | 2,133 | No. | 32 |
| 2 | 200 | 2 | 200 | | | | | | | | | 419,750 | 1,150 | 559,667 | 1,533 | Yes | 33 |
| 3 | 550 | 3 | 550 | | | | | | | | | | | | | Yes | 34 |
| 2 | 500 | 2 | 500 | | | | | | | | | 150,562 | 412 | 200,750 | 550 | No. | 35 |
| [6]2 | 260 | 2 | 260 | | | | | | | | | | | | | No. | 36 |
| 1 | 150 | 1 | 150 | | | | | | | | | [8]153,000 | 510 | [8]204,000 | 680 | No. | 37 |
| [6]1 | 300 | 1 | 300 | | | | | | | | | | | | | No. | 38 |
| 1 | 150 | 1 | 150 | | | | | | | | | [9]61,500 | 500 | [9]81,918 | 666 | Yes | 39 |
| 2 | 470 | 2 | 470 | | | | | | | See p. 397 | | [8]675,250 | 2,228 | [8]900,335 | 2,971 | No. | 40 |
| | | | | | | | | | | | | | | | | No. | 41 |
| 5 | 290 | 5 | 290 | | | | | 2 | 400 | | | 1,350,500 | 3,700 | 1,800,910 | 4,934 | Yes | 42 |
| | | | | | | | | | | | | | | | | No. | 43 |
| 5 | 1,600 | 5 | 1,600 | | | | | | | See p. 397 | | 328,500 | 900 | 438,000 | 1,200 | No. | 44 |
| 2 | 900 | 2 | 900 | | | | | 1 | 200 | See p. 397 | | 1,204,500 | 3,300 | 1,606,000 | 4,400 | Yes | 45 |
| 6 | 1,100 | 5 | 450 | 1 | 650 | | | | | | | 1,149,750 | 3,150 | 1,533,000 | 4,200 | No. | 46 |
| | | | | | | | | | | | | | | | | No. | 47 |
| [6]1 | 225 | 1 | 225 | | | | | | | | | | | | | No. | 48 |
| 4 | 495 | 4 | 495 | | | | | | | | | 2,430,900 | 6,660 | 3,241,200 | 8,880 | No. | 49 |
| 2 | 222 | 2 | 222 | | | | | | | | | [8]170,820 | 555 | [8]227,760 | 740 | No. | 50 |
| 61 | 14,000 | 53 | 8,503 | 6 | 3,444 | 2 | 2,053 | 13 | 8,955 | See p. 398 | See p. 401 | [10]48,737,302 | 140,640 | [10]65,088,917 | 187,858 | | |
| | | | | | | | | | | | | | | | | No. | 1 |
| 1 | 120 | 1 | 120 | | | | | | | | | 132,312 | 363 | 175,416 | 483 | Yes | 2 |
| 3 | 750 | 3 | 750 | | | | | | | See p. 398 | | 1,815,000 | 5,000 | 2,420,000 | 6,667 | No. | 3 |
| 4 | 1,025 | 3 | 450 | 1 | 575 | | | | | | | 2,427,250 | 6,650 | 3,236,455 | 8,867 | No. | 4 |
| | | | | | | | | 1 | 1,000 | See p. 398 | See p. 401 | [7]478,880 | 2,624 | [7]638,506 | 3,499 | No. | 5 |
| | | | | | | | | | | | | | | | | No. | 6 |
| 9 | 4,062 | 5 | 890 | 2 | 1,119 | 2 | 2,053 | | | See p. 398 | | 13,048,750 | 35,750 | 17,398,455 | 47,667 | Yes | 7 |
| | | | | | | | | | | | | | | | | No. | 8 |
| | | | | | | | | 1 | 700 | See p. 398 | See p. 401 | [11]489,256 | 5,318 | [11]652,341 | 7,129 | No. | 9 |
| 2 | 1,200 | | | 2 | 1,200 | | | | | | | 1,651,615 | 4,525 | 2,219,200 | 6,080 | No. | 10 |
| | | | | | | | | 3 | 6,000 | See p. 398 | See p. 401 | 13,219,925 | 36,219 | 17,700,000 | 48,500 | No. | 11 |
| 2 | 600 | 2 | 600 | | | | | | | | | 985,500 | 2,700 | 1,320,570 | 3,618 | No. | 12 |
| | | | | | | | | | | | | | | | | No. | 13 |
| 2 | 419 | 2 | 419 | | | | | | | | | 328,500 | 900 | 440,390 | 1,206 | Yes | 14 |
| 8 | 1,176 | 7 | 626 | 1 | 550 | | | | | | | 1,023,825 | 2,805 | 1,372,400 | 3,760 | Yes | 15 |
| 2 | 160 | 2 | 160 | | | | | | | | | [9]439,200 | 3,600 | [9]585,600 | 4,800 | Yes | 16 |
| 1 | 150 | 1 | 150 | | | | | | | | | [7]109,800 | 600 | [7]146,400 | 800 | No. | 17 |
| 3 | 293 | 3 | 293 | | | | | 2 | 230 | | | 515,380 | 1,412 | 687,173 | 1,883 | Yes | 18 |
| 1 | 100 | 1 | 100 | | | | | | | | | 365,000 | 100 | 486,666 | 133 | Yes | 19 |
| | | | | | | | | | | | | | | | | No. | 20 |
| | | | | | | | | | | | | | | | | No. | 21 |
| 4 | 1,072 | 4 | 1,072 | | | | | | | See p. 398 | See p. 401 | 3,536,950 | 9,690 | 4,715,800 | 12,920 | Yes | 22 |
| 7 | 1,290 | 7 | 1,290 | | | | | 1 | 125 | See p. 398 | | 3,793,875 | 10,394 | 5,058,500 | 13,859 | No. | 23 |
| 8 | 710 | 8 | 710 | | | | | 5 | 900 | | | 2,058,534 | 5,640 | 2,744,712 | 7,520 | Yes | 24 |
| 2 | 205 | 2 | 205 | | | | | | | | | 410,625 | 1,125 | 547,500 | 1,500 | No. | 25 |
| 2 | 668 | 2 | 668 | | | | | | | | | 1,907,125 | 5,225 | 2,542,833 | 6,967 | No. | 26 |
| | | | | | | | | | | | | | | | | No. | 27 |
| 81 | 14,510 | 77 | 10,300 | 3 | 1,810 | 1 | 2,400 | 20 | 3,379 | See p. 398 | See p. 401 | [12]22,887,915 | 62,569 | [12]30,460,624 | 83,453 | | |
| 3 | 410 | 3 | 410 | | | | | 2 | 175 | | | 320,500 | 878 | 427,333 | 1,170 | Yes | 1 |
| 4 | 900 | 4 | 900 | | | | | 2 | 300 | | | 1,868,800 | 5,120 | 2,491,800 | 6,827 | Yes | 2 |
| 3 | 480 | 3 | 480 | | | | | | | See p. 398 | | 598,600 | 1,640 | 798,134 | 2,187 | No. | 3 |
| | | | | | | | | | | | | | | | | No. | 4 |

[7] For 6 months only.
[8] For 10 months only.
[9] For 4 months only.
[10] For 20 companies only, and includes 4 companies operating part of year.
[11] For 3 months only.
[12] For 18 companies only.

TABLE 96.—POWER AND GENERATING

| Number. | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. | | | | | | | | WATER-POWER.[1] | AUXILIARY STEAM ENGINES. | | BOILERS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | |
| | | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | H. P. | No. | H. P. | No. | H. P. |
| | IOWA—Continued. | | | | | | | | | | | | | | |
| 5 | State Electric[3] | | | | | | | | | | | | | | |
| 6 | Omaha and Council Bluffs | 2 | 6 | 2,400 | 5 | 1,400 | | | 1 | 1,000 | | | | 12 | 1,600 |
| 7 | Tri-City Railway | 1 | 8 | 1,025 | 8 | 1,025 | | | | | | 1 | 35 | 3 | 1,250 |
| 8 | Des Moines City Railway[4] | 1 | 6 | 4,500 | 4 | 1,350 | 1 | 750 | 1 | 2,400 | | | | 19 | 3,800 |
| 9 | Interurban Railway | | | | | | | | | | | | | | |
| 10 | Union Electric | 1 | 8 | 2,150 | 7 | 1,450 | 1 | 700 | | | | | | 12 | 1,950 |
| 11 | Fort Dodge Light and Power | 1 | 4 | 750 | 4 | 750 | | | | | | | | 4 | 600 |
| 12 | Fort Madison Street Railway[2] | | | | | | | | | | | | | | |
| 13 | Independence and Rush Park | 1 | 2 | 200 | 2 | 200 | | | | | | | | 3 | 220 |
| 14 | Keokuk Railway and Power | 1 | 3 | 800 | 3 | 800 | | | | | | | | 2 | 600 |
| 15 | Marshalltown Light, Power and Railway | 1 | 4 | 500 | 4 | 500 | | | | | | | | 4 | 380 |
| 16 | Mason City and Clear Lake | 1 | 2 | 600 | 2 | 600 | | | | | | | | 4 | 500 |
| 17 | Citizens Railway and Light | 1 | 2 | 730 | 2 | 730 | | | | | | | | 3 | 450 |
| 18 | Ottumwa Traction and Light | 1 | 4 | 1,100 | 4 | 1,100 | | | | | | | | 6 | 1,600 |
| 19 | Red Oak Street Railway | | | | | | | | | | | | | | |
| 20 | Sioux City Traction | 1 | 2 | 1,350 | | | 2 | 1,350 | | | | | | 5 | 850 |
| 21 | Tama and Toledo | 1 | 3 | 235 | 3 | 235 | | | | | | | | 3 | 255 |
| 22 | Waterloo and Cedar Falls | 1 | 2 | 1,000 | 2 | 1,000 | | | | | | | | 4 | 400 |
| | KANSAS. | | | | | | | | | | | | | | |
| | Total for state | 7 | 11 | 3,715 | 9 | 2,615 | 2 | 1,100 | | | | | | 19 | 3,105 |
| 1 | Arkansas City Street Railway | | | | | | | | | | | | | | |
| 2 | Atchison Railway, Light and Power | 1 | 1 | 450 | 1 | 450 | | | | | | | | 2 | 500 |
| 3 | Fort Scott Consolidated Supply | 1 | 1 | 300 | 1 | 300 | | | | | | | | 2 | 230 |
| 4 | Hutchinson Street Railway | | | | | | | | | | | | | | |
| 5 | Iola Electric Railroad | 1 | 1 | 450 | 1 | 450 | | | | | | | | 2 | 400 |
| 6 | Electric Railway and Ice | 1 | 1 | 200 | 1 | 200 | | | | | | | | 2 | 200 |
| 7 | Kansas City-Leavenworth[6] | | | | | | | | | | | | | | |
| 8 | Pittsburg Railroad | 1 | 2 | 400 | 2 | 400 | | | | | | | | 3 | 350 |
| 9 | Consolidated Street Railway | | | | | | | | | | | | | | |
| 10 | Topeka Railway | 1 | 2 | 800 | 2 | 800 | | | | | | | | 5 | 625 |
| 11 | Wichita Railroad and Light | 1 | 3 | 1,115 | 1 | 15 | 2 | 1,100 | | | | | | 3 | 800 |
| 12 | Union Street Railway | | | | | | | | | | | | | | |
| | KENTUCKY. | | | | | | | | | | | | | | |
| | Total for state | 9 | 31 | 15,995 | 21 | 4,095 | 7 | 4,700 | 3 | 7,200 | | 5 | 65 | 53 | 13,670 |
| 1 | Bowling Green Railway | 1 | 1 | 160 | 1 | 160 | | | | | | | | 2 | 250 |
| 2 | Cincinnati, Newport and Covington | 1 | 3 | 2,200 | 2 | 1,000 | | | 1 | 1,200 | | | | 8 | 3,000 |
| 3 | Frankfort and Suburban | 1 | 1 | 225 | 1 | 225 | | | | | | | | 1 | 225 |
| 4 | Henderson Street Railway | 1 | 2 | 220 | 2 | 220 | | | | | | | | 2 | 150 |
| 5 | Lexington Railway | 1 | 7 | 2,330 | 4 | 630 | 3 | 1,700 | | | | | | 7 | 1,625 |
| 6 | Georgetown and Lexington[3] | | | | | | | | | | | | | | |
| 7 | Louisville Railway | 1 | 6 | 9,000 | | | 4 | 3,000 | 2 | 6,000 | | 4 | 50 | 22 | 6,000 |
| 8 | Louisville, Anchorage and Pewee | 1 | 2 | 400 | 2 | 400 | | | | | | 1 | 15 | 2 | 800 |
| 9 | Kentucky and Indiana[3] | | | | | | | | | | | | | | |
| 10 | Maysville Street Railroad | | (5) | | | | | | | | | | | | |
| 11 | Owensboro City Railroad | 1 | 2 | 160 | 2 | 160 | | | | | | | | 2 | 220 |
| 12 | Paducah City Railway | 1 | 7 | 1,300 | 7 | 1,300 | | | | | | | | 7 | 1,400 |
| | LOUISIANA. | | | | | | | | | | | | | | |
| | Total for state | 7 | 23 | 13,550 | 16 | 5,000 | 2 | 1,650 | 5 | 6,900 | | | | 38 | 8,069 |
| 1 | Baton Rouge Electric and Gas | 1 | 3 | 800 | 3 | 800 | | | | | | | | 4 | 400 |
| 2 | Lake Charles Street Railway | | | | | | | | | | | | | | |
| 3 | St. Charles Street Railroad | 1 | 4 | 1,700 | 3 | 900 | 1 | 800 | | | | | | 3 | 615 |
| 4 | Orleans Railroad | 1 | 2 | 600 | 2 | 600 | | | | | | | | 2 | 534 |
| 5 | New Orleans Railways | 1 | 5 | 6,500 | | | 1 | 850 | 4 | 5,650 | | | | 18 | 3,150 |
| 6 | New Orleans and Carrollton | 2 | 7 | 3,250 | 6 | 2,000 | | | 1 | 1,250 | | | | 8 | 2,920 |
| 7 | Algiers, McDonoghville and Gretna | | | | | | | | | | | | | | |
| 8 | Shreveport Belt Railway | 1 | 2 | 700 | 2 | 700 | | | | | | | | 3 | 450 |
| | MAINE. | | | | | | | | | | | | | | |
| | Total for state | 19 | 25 | 9,740 | 20 | 5,840 | 4 | 2,350 | 1 | 1,550 | 3,325 | | | 34 | 7,010 |
| 1 | Augusta, Winthrop and Gardiner | 1 | 2 | 450 | 2 | 450 | | | | | | | | 3 | 450 |
| 2 | Public Works | 1 | 2 | 1,200 | | | 2 | 1,200 | | | 2,000 | | | 3 | 810 |
| 3 | Penobscot Central Railway | 1 | 2 | 700 | 2 | 700 | | | | | | | | 3 | 375 |
| 4 | Bangor, Orono and Old Town[3] | | | | | | | | | | | | | | |
| 5 | Bangor, Hampden and Winterport[3] | | | | | | | | | | | | | | |
| 6 | Biddeford and Saco | 1 | 3 | 575 | 3 | 575 | | | | | | | | 3 | 550 |
| 7 | Calais Street Railway | 1 | 1 | 175 | 1 | 175 | | | | | | | | 1 | 200 |
| 8 | Benton and Fairfield | 1 | (5) | | | | | | | | | | | | |
| 9 | Fryeburg Horse Railway | | | | | | | | | | | | | | |
| 10 | Atlantic Shore Line[3] | | | | | | | | | | | | | | |
| 11 | Lewiston, Brunswick and Bath | 3 | 3 | 1,200 | 3 | 1,200 | | | | | | | | 4 | 700 |
| 12 | Norway and Paris[3] | | | | | | | | | | | | | | |
| 13 | Portland Railroad | 2 | 5 | 3,300 | 3 | 1,200 | 1 | 550 | 1 | 1,550 | | | | 8 | 2,500 |
| 14 | Portsmouth, Kittery and York | 1 | 3 | 800 | 3 | 800 | | | | | | | | 3 | 550 |
| 15 | Rockland, Thomaston and Camden | 1 | 2 | 850 | 1 | 250 | 1 | 600 | | | | | | 3 | 375 |
| 16 | Sanford and Cape Porpoise | 1 | 1 | 90 | 1 | 90 | | | | | 75 | | | 1 | 100 |
| 17 | Skowhegan and Norridgewock Railway and Power. | 1 | (5) | | | | | | | | | | | | |
| 18 | Somerset Traction[3] | 1 | | | | | | | | | | | | | |
| 19 | Waterville and Fairfield Railway and Light. | 3 | 1 | 400 | 1 | 400 | | | | | 1,250 | | | 2 | 400 |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] Power rented.
[4] Includes figures for Interurban Railway Company.
[5] For 7 companies only.
[6] This company failed to make a report.

**PLANTS, BY COMPANIES: 1902—Continued.**

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[2] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| | | | | | | | | | | | | | | | | No.... | 5 |
| 8 | 1,401 | 7 | 791 | 1 | 610 | ..... | ..... | ..... | ..... | ..... | ..... | 1,869,568 | 5,122 | 2,492,757 | 6,829 | Yes... | 6 |
| 8 | 1,000 | 8 | 1,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3,120,547 | 8,549 | 4,160,635 | 11,399 | No.... | 7 |
| 15 | 4,650 | 14 | 2,250 | ..... | ..... | 1 | 2,400 | ..... | ..... | See p. 398. | ..... | 4,626,375 | 12,675 | 6,168,500 | 16,900 | No.... | 8 |
| | | | | | | | | ..... | ..... | See p. 398. | See p. 401. | | | | | No.... | 9 |
| 15 | 1,166 | 15 | 1,166 | ..... | ..... | ..... | ..... | 3 | 666 | See p. 398. | ..... | 1,378,970 | 3,778 | 1,838,627 | 5,037 | Yes... | 10 |
| 4 | 230 | 4 | 230 | ..... | ..... | ..... | ..... | 2 | 200 | ..... | ..... | 832,565 | 2,281 | 1,109,965 | 3,041 | Yes... | 11 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 12 |
| 2 | 200 | 2 | 200 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 54,750 | 150 | 73,000 | 200 | No.... | 13 |
| 4 | 525 | 4 | 525 | ..... | ..... | ..... | ..... | 3 | 500 | ..... | ..... | 1,008,860 | 2,764 | 1,345,025 | 3,685 | Yes... | 14 |
| 3 | 295 | 3 | 295 | ..... | ..... | ..... | ..... | 3 | 540 | See p. 398. | ..... | 602,250 | 1,650 | 803,000 | 2,200 | Yes... | 15 |
| 2 | 600 | 2 | 600 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,606,000 | 4,400 | 2,141,455 | 5,867 | No.... | 16 |
| 2 | 335 | 2 | 335 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398. | ..... | 359,890 | 986 | 479,853 | 1,315 | Yes... | 17 |
| 3 | 725 | 3 | 725 | ..... | ..... | ..... | ..... | 2 | 600 | See p. 398. | ..... | 1,460,000 | 4,000 | 1,957,130 | 5,362 | Yes... | 18 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 19 |
| 2 | 1,200 | ..... | ..... | 2 | 1,200 | ..... | ..... | ..... | ..... | ..... | ..... | 2,057,140 | 5,636 | 2,742,610 | 7,514 | Yes... | 20 |
| 2 | 193 | 2 | 193 | ..... | ..... | ..... | ..... | 2 | 123 | See p. 398. | ..... | 87,600 | 240 | 116,800 | 320 | Yes... | 21 |
| 1 | 200 | 1 | 200 | ..... | ..... | ..... | ..... | 1 | 275 | See p. 398. | See p. 401. | 985,500 | 2,700 | 1,314,000 | 3,600 | Yes... | 22 |
| 21 | 3,254 | 21 | 3,254 | ..... | ..... | ..... | ..... | 3 | 560 | See p. 398. | ..... | [5]3,585,723 | 9,823 | [5]4,780,964 | 13,097 | ..... | |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 1 |
| 3 | 900 | 3 | 900 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 246,375 | 675 | 328,500 | 900 | No.... | 2 |
| 2 | 267 | 2 | 267 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 135,780 | 372 | 181,040 | 496 | Yes... | 3 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 4 |
| 1 | 450 | 1 | 450 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 271,750 | 744 | 362,333 | 992 | No.... | 5 |
| 1 | 125 | 1 | 125 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 39,420 | 108 | 52,560 | 144 | Yes... | 6 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | ..... | 7 |
| 1 | 200 | 1 | 200 | ..... | ..... | ..... | ..... | 1 | 160 | ..... | ..... | 706,275 | 1,935 | 941,700 | 2,580 | Yes... | 8 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 9 |
| 9 | 760 | 9 | 760 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,178,723 | 3,229 | 1,571,631 | 4,305 | No.... | 10 |
| 4 | 552 | 4 | 552 | ..... | ..... | ..... | ..... | 2 | 400 | See p. 398. | ..... | 1,007,400 | 2,760 | 1,343,200 | 3,680 | Yes... | 11 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 12 |
| 31 | 14,332 | 23 | 3,599 | 5 | 3,533 | 3 | 7,200 | 10 | 1,473 | See p. 398. | ..... | [7]24,831,481 | 68,032 | [7]33,108,267 | 90,708 | ..... | |
| 1 | 133 | 1 | 133 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 197,100 | 540 | 262,800 | 720 | No.... | 1 |
| 3 | 2,200 | 2 | 1,000 | ..... | ..... | 1 | 1,200 | ..... | ..... | ..... | ..... | 1,022,000 | 2,800 | 1,362,545 | 3,733 | No.... | 2 |
| 2 | 250 | 2 | 250 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 310,980 | 852 | 414,640 | 1,136 | No.... | 3 |
| 2 | 265 | 2 | 265 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 350,400 | 960 | 467,200 | 1,280 | No.... | 4 |
| 4 | 1,199 | 3 | 666 | 1 | 533 | ..... | ..... | 5 | 773 | ..... | ..... | 1,348,346 | 3,694 | 1,797,795 | 4,925 | Yes... | 5 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 6 |
| 6 | 9,000 | ..... | ..... | 4 | 3,000 | 2 | 6,000 | ..... | ..... | See p. 398. | ..... | 12,956,718 | 35,498 | 17,275,614 | 47,331 | No.... | 7 |
| 2 | 335 | 2 | 335 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3,358,000 | 9,200 | 4,477,090 | 12,266 | No.... | 8 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 9 |
| 2 | 185 | 2 | 185 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 141,437 | 388 | 188,583 | 517 | Yes... | 10 |
| 2 | 160 | 2 | 160 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [9]219,000 | 600 | [9]292,000 | 800 | No.... | 11 |
| 7 | 605 | 7 | 605 | ..... | ..... | ..... | ..... | 5 | 700 | See p. 398. | ..... | 4,927,500 | 13,500 | 6,570,000 | 18,000 | Yes... | 12 |
| 31 | 12,268 | 23 | 4,602 | 5 | 3,363 | 3 | 4,303 | 1 | 73 | See p. 398. | ..... | [10]28,835,085 | 79,000 | [10]38,446,537 | 105,333 | ..... | |
| 6 | 425 | 6 | 425 | ..... | ..... | ..... | ..... | 1 | 73 | ..... | ..... | 1,271,660 | 3,484 | 1,695,425 | 4,645 | Yes... | 1 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 2 |
| 4 | 1,480 | 3 | 807 | 1 | 673 | ..... | ..... | ..... | ..... | ..... | ..... | 2,472,875 | 6,775 | 3,297,045 | 9,033 | No.... | 3 |
| 2 | 269 | 2 | 269 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,485,550 | 4,070 | 1,980,733 | 5,427 | No.... | 4 |
| 8 | 6,388 | 2 | 538 | 4 | 2,690 | 2 | 3,160 | ..... | ..... | See p. 398. | ..... | 15,330,000 | 42,000 | 20,440,000 | 56,000 | No.... | 5 |
| 7 | 3,026 | 6 | 1,883 | ..... | ..... | 1 | 1,143 | ..... | ..... | ..... | ..... | 6,935,000 | 19,000 | 9,246,667 | 25,333 | No.... | 6 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 7 |
| 4 | 680 | 4 | 680 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,340,000 | 3,671 | 1,786,667 | 4,895 | Yes... | 8 |
| 45 | 9,478 | 39 | 5,678 | 6 | 3,800 | ..... | ..... | 10 | 3,083 | See p. 398. | See p. 401. | [11]25,578,242 | 70,129 | [11]34,104,558 | 93,506 | ..... | |
| 4 | 602 | 4 | 602 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 985,500 | 2,700 | 1,314,000 | 3,600 | Yes... | 1 |
| 8 | 900 | 8 | 900 | ..... | ..... | ..... | ..... | 2 | 1,000 | See p. 398. | See p. 401. | 2,306,000 | 6,318 | 3,074,666 | 8,424 | Yes... | 2 |
| 2 | 750 | 2 | 750 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 401. | 481,800 | 1,320 | 642,400 | 1,760 | No.... | 3 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 4 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 5 |
| 3 | 575 | 3 | 575 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398. | ..... | 200,750 | 550 | 267,545 | 733 | Yes... | 6 |
| 1 | 135 | 1 | 135 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 400,600 | 1,098 | 534,133 | 1,464 | Yes... | 7 |
| 1 | 133 | 1 | 133 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 148,555 | 407 | 198,073 | 543 | No.... | 8 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 9 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 10 |
| 1 | 400 | 1 | 400 | ..... | ..... | ..... | ..... | 3 | 1,000 | See p. 398. | See p. 401. | 5,712,250 | 15,650 | 7,616,090 | 20,866 | No.... | 11 |
| 1 | 85 | 1 | 85 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | | | | | No.... | 12 |
| 6 | 3,800 | ..... | ..... | 6 | 3,800 | ..... | ..... | ..... | ..... | See p. 398. | ..... | 4,613,570 | 12,640 | 6,151,423 | 16,853 | No.... | 13 |
| 3 | 750 | 3 | 750 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398. | See p. 401. | 657,000 | 1,800 | 876,000 | 2,400 | No.... | 14 |
| 8 | 575 | 8 | 575 | ..... | ..... | ..... | ..... | 1 | 250 | ..... | ..... | 1,200,437 | 3,289 | 1,600,583 | 4,385 | Yes... | 15 |
| 2 | 150 | 2 | 150 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 401. | 565,750 | 1,550 | 754,455 | 2,067 | No.... | 16 |
| 1 | 110 | 1 | 110 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [12]71,630 | 247 | [12]95,990 | 331 | No.... | 17 |
| | | | | | | | | ..... | ..... | ..... | ..... | | | | | No.... | 18 |
| 4 | 513 | 4 | 513 | ..... | ..... | ..... | ..... | 4 | 833 | See p. 398. | See p. 401. | 8,234,400 | 22,560 | 10,979,200 | 30,080 | Yes... | 19 |

[7] For 10 companies only, and includes 1 company operating part of year.
[8] Steam power rented.
[9] For 6 months only.
[10] For 6 companies only.
[11] For 13 companies only, and includes 1 company operating part of year.
[12] For 10 months only.

TABLE 96.—POWER AND GENERATING

| Number. | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. | | | | | | | | WATER-POWER.[1] | AUXILIARY STEAM ENGINES. | | BOILERS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | |
| | | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | H. P. | No. | H. P. | No. | H. P. |
| | MARYLAND. | | | | | | | | | | | | | | |
| | Total for state | 13 | 47 | 27,400 | 27 | 7,400 | 15 | 10,100 | 5 | 9,900 | | | | 73 | 18,635 |
| 1 | United Railways | 10 | 40 | 24,500 | 21 | 5,100 | 14 | 9,500 | 5 | 9,900 | | | | 66 | 17,135 |
| 2 | Cumberland Electric Railway[4] | | | | | | | | | | | | | | |
| 3 | Frederick and Middletown | 1 | 2 | 1,000 | 1 | 400 | 1 | 600 | | | | | | 2 | 250 |
| 4 | Kensington Railway[4] | | | | | | | | | | | | | | |
| 5 | Cumberland and Westernport | 1 | 2 | 700 | 2 | 700 | | | | | | | | 2 | 700 |
| 6 | Hagerstown Railway | 1 | 3 | 1,200 | 3 | 1,200 | | | | | | | | 3 | 550 |
| 7 | Baltimore and Washington[4] | | | | | | | | | | | | | | |
| 8 | Washington and Glen Echo[4] | | | | | | | | | | | | | | |
| 9 | Washington and Rockville[4] | | | | | | | | | | | | | | |
| 10 | Washington, Woodside and Forest Glen[4] | | | | | | | | | | | | | | |
| | MASSACHUSETTS. | | | | | | | | | | | | | | |
| | Total for state | 72 | 209 | 133,850 | 136 | 43,020 | 37 | 21,780 | 36 | 69,050 | 1,732 | 25 | 598 | 324 | 80,690 |
| 1 | Amherst and Sunderland | 1 | 2 | 400 | 2 | 400 | | | | | | | | 2 | 300 |
| 2 | Interstate Consolidated[4] | | | | | | | | | | | | | | |
| 3 | Lexington and Boston | 1 | 3 | 930 | 3 | 930 | | | | | | | | 4 | 1,000 |
| 4 | Old Colony Street Railway | 8 | 38 | 15,820 | 23 | 6,640 | 14 | 8,180 | 1 | 1,000 | | | | 52 | 10,023 |
| 5 | Boston and Northern | 10 | 30 | 18,575 | 12 | 3,675 | 13 | 7,150 | 5 | 7,750 | | 3 | 75 | 42 | 11,130 |
| 6 | Boston Elevated Railway | 8 | 38 | 54,450 | 17 | 5,550 | 1 | 700 | 20 | 48,200 | | 8 | 28 | 81 | 28,770 |
| 7 | Lowell and Boston[4] | | | | | | | | | | | | | | |
| 8 | New York, New Haven and Hartford Railroad. | 1 | 2 | 2,000 | | | | | 2 | 2,000 | | | | 8 | 1,200 |
| 9 | Blue Hill Street Railway | 1 | 2 | 650 | 2 | 650 | | | | | | | | 3 | 450 |
| 10 | Hoosac Valley | 1 | 3 | 1,450 | 2 | 800 | 1 | 650 | | | | | | 5 | 1,250 |
| 11 | Concord, Maynard and Hudson | 1 | 2 | 700 | 2 | 700 | | | | | | | | 2 | 700 |
| 12 | Conway Electric Railway | 1 | 1 | 100 | 1 | 100 | | | | | | | | 1 | 125 |
| 13 | Cottage City and Edgartown[4] | | | | | | | | | | | | | | |
| 14 | Norfolk Western Railway[4] | | | | | | | | | | | | | | |
| 15 | Greenfield and Deerfield[4] | | | | | | | | | | | | | | |
| 16 | Providence and Fall River[4] | | | | | | | | | | | | | | |
| 17 | Dartmouth and Westport[4] | | | | | | | | | | | | | | |
| 18 | Fitchburg and Leominster | 1 | 3 | 1,310 | 2 | 660 | 1 | 650 | | | | | | 6 | 1,200 |
| 19 | Framingham Union Street Railway[4] | | | | | | | | | | | | | | |
| 20 | Gardner, Westminster and Fitchburg | 2 | 2 | 600 | 2 | 600 | | | | | | | | 3 | 600 |
| 21 | Greenfield and Turners Falls | 2 | | | | | | | | | 440 | | | | |
| 22 | Haverhill and Southern New Hampshire.[4] | | | | | | | | | | | | | | |
| 23 | Haverhill, Georgetown and Danvers[4] | | | | | | | | | | | | | | |
| 24 | Haverhill and Amesbury | 1 | 1 | 500 | 1 | 500 | | | | | | | | 4 | 500 |
| 25 | Holyoke Street Railway | 1 | 5 | 4,000 | 3 | 1,200 | | | 2 | 2,800 | | | | 5 | 2,000 |
| 26 | Lawrence and Reading | 1 | 2 | 600 | 2 | 600 | | | | | | | | 2 | 500 |
| 27 | Lawrence and Methuen[4] | | | | | | | | | | | | | | |
| 28 | Middleton and Danvers[4] | | | | | | | | | | | | | | |
| 29 | Norfolk and Bristol | 1 | 2 | 900 | 2 | 900 | | | | | | | | 2 | 500 |
| 30 | Marlboro Street Railway | 1 | 2 | 500 | 2 | 500 | | | | | | | | 3 | 600 |
| 31 | Marlboro and Westboro | 1 | 2 | 800 | 2 | 800 | | | | | | | | 2 | 500 |
| 32 | Medfield and Medway[4] | | | | | | | | | | | | | | |
| 33 | Middleboro, Wareham and Buzzards Bay.[4] | | | | | | | | | | | | | | |
| 34 | Milford, Attleboro and Woonsocket | 1 | 2 | 750 | 2 | 750 | | | | | | | | 3 | 600 |
| 35 | Milford and Uxbridge | 1 | 5 | 2,100 | 4 | 1,200 | 1 | 900 | | | | | | 5 | 750 |
| 36 | Natick and Cochituate[4] | | | | | | | | | | | | | | |
| 37 | South Middlesex Street Railway | 1 | 3 | 950 | 3 | 950 | | | | | | | | 3 | 450 |
| 38 | Union Street Railway | 1 | 4 | 3,100 | 2 | 600 | | | 2 | 2,500 | | 10 | 300 | 8 | 1,800 |
| 39 | New Bedford and Onset | 1 | 3 | 750 | 3 | 750 | | | | | | 3 | 35 | 4 | 1,200 |
| 40 | Citizens Electric Railway | 1 | 2 | 950 | 1 | 350 | 1 | 600 | | | | | | 5 | 875 |
| 41 | Georgetown, Rowley and Ipswich | 1 | 2 | 500 | 2 | 500 | | | | | | | | 3 | 700 |
| 42 | Commonwealth Avenue[4] | | | | | | | | | | | | | | |
| 43 | Wellesley and Boston[4] | | | | | | | | | | | | | | |
| 44 | Newton and Boston | 1 | 4 | 1,100 | 4 | 1,100 | | | | | | | | 4 | 750 |
| 45 | Newton Street Railway[4] | | | | | | | | | | | | | | |
| 46 | Northampton Street Railway | 1 | 5 | 1,200 | 4 | 600 | 1 | 600 | | | | | | 6 | 840 |
| 47 | Northampton and Amherst | 1 | 1 | 300 | 1 | 300 | | | | | | | | 2 | 300 |
| 48 | Haverhill and Andover[4] | | | | | | | | | | | | | | |
| 49 | Norton and Taunton | 1 | 2 | 700 | 2 | 700 | | | | | | | | 2 | 500 |
| 50 | Athol and Orange[4] | | | | | | | | | | | | | | |
| 51 | Pittsfield Electric[4] | | [5]1 | 250 | 1 | 250 | | | | | | [5]1 | 160 | | |
| 52 | Plymouth and Sandwich[4] | | | | | | | | | | | | | | |
| 53 | Brockton and Plymouth | 1 | 3 | 1,200 | 3 | 1,200 | | | | | | | | 4 | 600 |
| 54 | Norwood, Canton and Sharon[4] | | | | | | | | | | | | | | |
| 55 | Shelburne Falls and Colerain | 1 | 1 | 250 | 1 | 250 | | | | | 250 | | | 1 | 250 |
| 56 | Southbridge and Sturbridge[4] | | | | | | | | | | | | | | |
| 57 | Hampshire Street Railway[4] | | | | | | | | | | | | | | |
| 58 | Springfield Street Railway | 1 | 4 | 4,800 | | | | | 4 | 4,800 | | | | 8 | 2,000 |
| 59 | Springfield and Eastern | 1 | 2 | 950 | 2 | 950 | | | | | 450 | | | 2 | 512 |
| 60 | Stoughton and Randolph[4] | | | | | | | | | | | | | | |
| 61 | East Taunton Street Railway[4] | | | | | | | | | | | | | | |
| 62 | Bristol County | 1 | 2 | 840 | 2 | 840 | | | | | | | | 2 | 840 |
| 63 | Templeton Street Railway | 1 | 2 | 375 | 2 | 375 | | | | | | | | 4 | 500 |
| 64 | Marthas Vineyard[4] | | | | | | | | | | | | | | |
| 65 | Upton Street Railway[4] | | | | | | | | | | | | | | |
| 66 | Reading, Wakefield and Lynnfield[4] | | | | | | | | | | | | | | |
| 67 | Hampshire and Worcester | 1 | 2 | 500 | 2 | 500 | | | | | | | | 2 | 500 |
| 68 | Warren, Brookfield and Spencer | 1 | 2 | 850 | 1 | 300 | 1 | 550 | | | | | | 2 | 375 |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] For 4 companies only, and includes 1 company operating part of year.
[4] Power rented.
[5] For 2¼ months only.

PLANTS, BY COMPANIES: 1902—Continued.

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[2] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| 52 | 24,565 | 37 | 8,901 | 10 | 6,064 | 5 | 9,600 | 2 | 240 | See p. 398..... | See p. 401..... | [3] 42,811,678 | 118,298 | [3] 57,082,116 | 157,730 | ..... | |
| 40 | 22,424 | 25 | 6,760 | 10 | 6,064 | 5 | 9,600 | ..... | ..... | See p. 398..... | ..... | 40,760,645 | 111,673 | 54,347,405 | 148,897 | No.... | 1 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 2 |
| 2 | 584 | 2 | 584 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 780,735 | 2,139 | 1,040,980 | 2,852 | No.... | 3 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 4 |
| 2 | 667 | 2 | 667 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [5] 84,048 | 1,236 | [5] 112,064 | 1,648 | No.... | 5 |
| 8 | 890 | 8 | 890 | ..... | ..... | ..... | ..... | 2 | 240 | ..... | ..... | 1,186,250 | 3,250 | 1,581,667 | 4,333 | Yes... | 6 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 7 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 8 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 401..... | ..... | ..... | ..... | ..... | No.... | 9 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 10 |
| 306 | 123,998 | 240 | 47,532 | 35 | 22,772 | 31 | 53,694 | 11 | 2,914 | See p. 398..... | See p. 401..... | [6] 189,431,406 | 524,462 | [6] 253,008,569 | 700,529 | ..... | |
| 2 | 266 | 2 | 266 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398..... | ..... | 328,500 | 900 | 438,000 | 1,200 | No.... | 1 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 2 |
| 3 | 950 | 3 | 950 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398..... | ..... | 2,190,000 | 6,000 | 2,920,000 | 8,000 | No.... | 3 |
| 65 | 16,028 | 53 | 8,461 | 12 | 7,567 | ..... | ..... | 3 | 247 | See p. 398..... | ..... | 19,321,265 | 52,935 | 25,899,819 | 70,959 | Yes... | 4 |
| 38 | 18,587 | 26 | 7,387 | 9 | 6,933 | 3 | 4,267 | 2 | 667 | See p. 398..... | See p. 401..... | 33,092,152 | 90,663 | 44,359,453 | 121,532 | Yes... | 5 |
| 80 | 47,921 | 53 | 4,325 | 7 | 3,733 | 20 | 39,863 | ..... | ..... | See p. 398..... | See p. 401..... | 86,011,178 | 235,647 | 114,681,570 | 314,196 | Yes... | 6 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 7 |
| 2 | 1,340 | ..... | ..... | 2 | 1,340 | ..... | ..... | ..... | ..... | ..... | ..... | [7] 1,225,020 | 6,414 | [7] 1,642,118 | 8,597 | No.... | 8 |
| 2 | 650 | 2 | 650 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 678,760 | 1,860 | 905,013 | 2,480 | Yes... | 9 |
| 3 | 850 | 3 | 850 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398..... | ..... | 1,173,542 | 3,215 | 1,573,150 | 4,310 | No.... | 10 |
| 2 | 670 | 2 | 670 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 668,388 | 1,831 | 895,962 | 2,454 | No.... | 11 |
| 1 | 100 | 1 | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 160,600 | 440 | 214,134 | 583 | No.... | 12 |
| [8] 2 | 120 | 2 | 120 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 13 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398..... | See p. 401..... | ..... | ..... | ..... | ..... | No.... | 14 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 15 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 16 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 17 |
| 3 | 1,225 | 2 | 660 | 1 | 565 | ..... | ..... | ..... | ..... | ..... | ..... | 2,774,000 | 7,600 | 3,698,667 | 10,134 | No.... | 18 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 19 |
| 2 | 600 | 2 | 600 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,296,845 | 3,553 | 1,729,127 | 4,737 | No.... | 20 |
| 3 | 399 | 3 | 399 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398..... | ..... | 449,540 | 1,232 | 602,615 | 1,651 | Yes... | 21 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 22 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 23 |
| 8 | 890 | 8 | 890 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,376,050 | 3,700 | 1,876,100 | 5,140 | Yes... | 24 |
| 5 | 4,000 | 3 | 1,200 | ..... | ..... | 2 | 2,800 | 1 | 100 | See p. 398..... | ..... | 3,040,482 | 8,330 | 4,053,976 | 11,107 | No.... | 25 |
| 2 | 600 | 2 | 600 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 752,252 | 2,061 | 1,006,495 | 2,763 | Yes... | 26 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 27 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 28 |
| 2 | 667 | 2 | 667 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [9] 513,310 | 1,406 | [9] 684,413 | 1,874 | Yes... | 29 |
| 2 | 634 | 2 | 634 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 698,410 | 1,913 | 936,206 | 2,564 | Yes... | 30 |
| 2 | 700 | 2 | 700 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398..... | ..... | 335,054 | 918 | 449,315 | 1,231 | Yes... | 31 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 32 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 33 |
| 2 | 767 | 2 | 767 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,907,125 | 5,225 | 2,421,045 | 6,633 | No.... | 34 |
| 3 | 1,400 | 2 | 500 | 1 | 900 | ..... | ..... | 2 | 300 | See p. 398..... | See p. 401..... | 2,145,835 | 5,879 | 2,861,235 | 7,839 | No.... | 35 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 36 |
| 3 | 1,150 | 2 | 550 | 1 | 600 | ..... | ..... | ..... | ..... | ..... | ..... | 992,800 | 2,720 | 1,323,733 | 3,626 | Yes... | 37 |
| 4 | 3,100 | 2 | 600 | ..... | ..... | 2 | 2,500 | ..... | ..... | ..... | ..... | 2,942,496 | 8,061 | 3,923,328 | 10,748 | Yes... | 38 |
| 3 | 750 | 3 | 750 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 866,815 | 2,374 | 1,155,753 | 3,165 | Yes... | 39 |
| 2 | 864 | 1 | 330 | 1 | 534 | ..... | ..... | ..... | ..... | ..... | ..... | 529,250 | 1,450 | 705,667 | 1,934 | Yes... | 40 |
| 2 | 700 | 2 | 700 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 602,250 | 1,650 | 803,000 | 2,200 | Yes... | 41 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 42 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 43 |
| 4 | 1,100 | 4 | 1,100 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398..... | ..... | 2,555,000 | 7,000 | 3,406,545 | 9,333 | Yes... | 44 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 45 |
| 5 | 1,200 | 4 | 600 | 1 | 600 | ..... | ..... | ..... | ..... | ..... | ..... | 1,889,313 | 5,176 | 2,519,084 | 6,901 | No.... | 46 |
| 1 | 400 | 1 | 400 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 584,090 | 1,600 | 831,835 | 2,279 | No.... | 47 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 48 |
| 2 | 333 | 2 | 333 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 730,000 | 2,000 | 973,333 | 2,667 | No.... | 49 |
| [8] 2 | 250 | 2 | 250 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 50 |
| [8] 2 | 450 | 2 | 450 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 51 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 52 |
| 2 | 667 | 2 | 667 | ..... | ..... | ..... | ..... | 1 | 400 | See p. 398..... | See p. 401..... | 1,081,130 | 2,962 | 1,441,507 | 3,949 | Yes... | 53 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 54 |
| 2 | 200 | 2 | 200 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 166,440 | 456 | 221,920 | 608 | Yes... | 55 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 56 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 57 |
| 4 | 4,264 | ..... | ..... | ..... | ..... | 4 | 4,264 | ..... | ..... | ..... | ..... | 6,348,528 | 17,393 | 8,464,697 | 23,187 | No.... | 58 |
| 3 | 1,075 | 3 | 1,075 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398..... | ..... | 1,299,190 | 3,560 | 1,732,260 | 4,750 | No.... | 59 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 60 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 61 |
| 2 | 533 | 2 | 533 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 657,000 | 1,800 | 876,000 | 2,400 | No.... | 62 |
| 2 | 525 | 2 | 525 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 729,270 | 1,998 | 977,574 | 2,678 | No.... | 63 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 64 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 65 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 66 |
| 2 | 500 | 2 | 500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 209,500 | 574 | 280,685 | 769 | No.... | 67 |
| 2 | 675 | 2 | 675 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 398..... | ..... | 1,916,250 | 5,250 | 2,568,870 | 7,038 | Yes... | 68 |

[6] For 44 companies only, and includes 3 companies operating part of year.
[7] For 6½ months only.
[8] Owned but not operated.
[9] For 10½ months only.

TABLE 96.—POWER AND GENERATING

| Number. | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. | | | | | | | | WATER-POWER.[1] | AUXILIARY STEAM ENGINES. | | BOILERS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | |
| | | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | H. P. | No. | H. P. | No. | H. P. |
| | MASSACHUSETTS—Continued. | | | | | | | | | | | | | | |
| 69 | Webster and Dudley | | (5) | | | | | | | | | | | | |
| 70 | Woronoco Street Railway | 1 | 2 | 300 | 2 | 300 | | | | | | | | 3 | 350 |
| 71 | Linwood Street Railway[4] | | | | | | | | | | | | | | |
| 72 | Worcester Consolidated | 5 | 9 | 3,650 | 8 | 3,050 | 1 | 600 | | | 592 | | | 14 | 2,025 |
| 73 | Worcester and Blackstone Valley | 1 | 2 | 1,000 | 2 | 1,000 | | | | | | | | 3 | 750 |
| 74 | Worcester and Southbridge | 1 | 2 | 1,200 | | | 2 | 1,200 | | | | | | 4 | 1,200 |
| 75 | Worcester and Webster | 1 | 2 | 1,000 | 2 | 1,000 | | | | | | | | 3 | 675 |
| | MICHIGAN. | | | | | | | | | | | | | | |
| | Total for state | 32 | 85 | 45,942 | 61 | 19,642 | 11 | 7,900 | 13 | 18,400 | | 27 | 749 | 127 | 27,923 |
| 1 | Adrian Street Railway | | (3) | | | | | | | | | | | | |
| 2 | Bay Cities Consolidated | 1 | 2 | 1,600 | | | 2 | 1,600 | | | | 1 | 7 | 3 | 1,000 |
| 3 | Benton Harbor and St. Joseph | 1 | 3 | 750 | 3 | 750 | | | | | | | | 3 | 700 |
| 4 | Detroit United Railway | 4 | 20 | 17,600 | 12 | 4,600 | | | 8 | 13,000 | | 3 | 30 | 47 | 11,525 |
| 5 | Detroit and Port Huron Shore Line | 1 | 5 | 3,080 | 2 | 80 | | | 3 | 3,000 | | 4 | 20 | 4 | 1,400 |
| 6 | Detroit, Ypsilanti, Ann Arbor and Jackson. | 7 | 12 | 5,160 | 12 | 5,160 | | | | | | 5 | 27 | 6 | 1,500 |
| 7 | Escanaba Electric Railway | 1 | 1 | 300 | 1 | 300 | | | | | | 1 | 80 | 2 | 300 |
| 8 | Grand Rapids Railway | 1 | 3 | 3,000 | | | 1 | 600 | 2 | 2,400 | | 1 | 5 | 6 | 1,325 |
| 9 | Grand Rapids, Grand Haven and Muskegon. | 3 | 7 | 2,600 | 7 | 2,600 | | | | | | | | 4 | 1,448 |
| 10 | Grand Rapids, Holland and Lake Michigan. | 1 | 2 | 1,500 | | | 2 | 1,500 | | | | 5 | 70 | 4 | 1,200 |
| 11 | Houghton County Street Railway | 2 | 2 | 1,500 | | | 2 | 1,500 | | | | | | 5 | 600 |
| 12 | Twin City General Electric | 1 | 2 | 575 | 2 | 575 | | | | | | 1 | 80 | 5 | 450 |
| 13 | Negaunee and Ishpeming | 1 | 3 | 575 | 3 | 575 | | | | | | 1 | 125 | 4 | 450 |
| 14 | Jackson and Suburban Traction[4] | | | | | | | | | | | | | | |
| 15 | Michigan Traction[4] | | | | | | | | | | | | | | |
| 16 | Lansing City Electric[4] | | | | | | | | | | | | | | |
| 17 | Manistee, Filer City and Eastlake | 1 | 3 | 900 | 2 | 200 | 1 | 700 | | | | | | 2 | 220 |
| 18 | Marquette and Presque Isle | 1 | 2 | 385 | 2 | 385 | | | | | | | | 4 | 400 |
| 19 | Menominee Light, Railway and Power | 1 | 3 | 950 | 3 | 950 | | | | | | | | 5 | 500 |
| 20 | Toledo and Monroe | 1 | 2 | 1,200 | | | 2 | 1,200 | | | | 2 | 20 | 2 | 1,000 |
| 21 | Muskegon Traction and Lighting | 1 | 3 | 1,067 | 3 | 1,067 | | | | | | 1 | 250 | 4 | 1,000 |
| 22 | Detroit, Plymouth and Northville | 1 | 2 | 500 | 2 | 500 | | | | | | | | 3 | 330 |
| 23 | Owosso and Corunna Electric | 1 | 3 | 500 | 3 | 500 | | | | | | 1 | 5 | 5 | 525 |
| 24 | Saginaw Valley Traction | 1 | 5 | 2,200 | 4 | 1,400 | 1 | 800 | | | | 1 | 30 | 9 | 2,050 |
| | MINNESOTA. | | | | | | | | | | | | | | |
| | Total for state | 6 | 19 | 10,325 | 12 | 2,600 | 1 | 525 | 6 | 7,200 | 10,280 | 7 | 950 | 34 | 6,410 |
| 1 | Interstate Traction[4] | | | | | | | | | | | | | | |
| 2 | Duluth-Superior Traction | 2 | 5 | 2,400 | 4 | 1,200 | | | 1 | 1,200 | | 1 | 50 | 9 | 1,500 |
| 3 | Twin City Rapid Transit | 3 | 9 | 7,125 | 3 | 600 | 1 | 525 | 5 | 6,000 | 10,280 | | | 20 | 4,210 |
| 4 | Benton Power and Traction[4] | | | | | | | | | | | | | | |
| 5 | Winona Railway and Light | 1 | 5 | 800 | 5 | 800 | | | | | | 6 | 900 | 5 | 700 |
| | MISSISSIPPI. | | | | | | | | | | | | | | |
| | Total for state | 5 | 9 | 2,555 | 9 | 2,555 | | | | | | | | 13 | 2,030 |
| 1 | Greenville Light and Car | 1 | 1 | 120 | 1 | 120 | | | | | | | | 1 | 100 |
| 2 | Jackson Railway, Light and Power | 1 | 2 | 800 | 2 | 800 | | | | | | | | 4 | 600 |
| 3 | Meridian Light and Railway | 1 | 3 | 675 | 3 | 675 | | | | | | | | 4 | 450 |
| 4 | Natchez Railway and Power | 1 | 1 | 160 | 1 | 160 | | | | | | | | (12) | |
| 5 | Vicksburg Railroad, Power and Manufacturing. | 1 | 2 | 800 | 2 | 800 | | | | | | | | 4 | 880 |
| | MISSOURI. | | | | | | | | | | | | | | |
| | Total for state | 22 | 68 | 64,520 | 27 | 7,770 | 16 | 11,650 | 25 | 45,100 | | 12 | 585 | 170 | 48,270 |
| 1 | Citizens Street Railway | | | | | | | | | | | | | | |
| 2 | Carrollton Electric Railway[4] | | | | | | | | | | | | | | |
| 3 | Clinton Street Railway | | | | | | | | | | | | | | |
| 4 | Hannibal Railway and Electric | 1 | 1 | 100 | 1 | 100 | | | | | | | | 1 | 100 |
| 5 | Southwest Missouri Electric Railway | 2 | 5 | 2,350 | 4 | 1,150 | | | 1 | 1,200 | | | | 6 | 1,925 |
| 6 | Metropolitan | 8 | 16 | 12,800 | 9 | 3,400 | 3 | 2,100 | 4 | 7,300 | | | | 37 | 10,600 |
| 7 | Missouri Water, Light and Traction | 1 | 3 | 500 | 3 | 500 | | | | | | | | 2 | 300 |
| 8 | St. Joseph Railway, Light, Heat and Power. | 1 | 5 | 3,350 | 1 | 200 | 3 | 1,950 | 1 | 1,200 | | | | 9 | 2,540 |
| 9 | St. Louis Transit | 4 | 23 | 36,600 | | | 7 | 5,200 | 16 | 31,400 | | 12 | 585 | 75 | 25,350 |
| 10 | St. Louis and Suburban | 1 | 5 | 5,800 | | | 2 | 1,800 | 3 | 4,000 | | | | 19 | 4,000 |
| 11 | St. Louis and Meramec River[4] | | | | | | | | | | | | | | |
| 12 | St. Louis and Kirkwood | | 3 | 1,000 | 2 | 400 | 1 | 600 | | | | | | 8 | 800 |
| 13 | St. Louis, St. Charles and Western | 2 | 3 | 1,200 | 3 | 1,200 | | | | | | | | 6 | 1,750 |
| 14 | Railway and Electric of Sedalia | 1 | 3 | 520 | 3 | 520 | | | | | | | | 4 | 575 |
| 15 | Kickapoo Transit | | | | | | | | | | | | | | |
| 16 | Springfield Traction | 1 | 1 | 300 | 1 | 300 | | | | | | | | 3 | 330 |
| | MONTANA. | | | | | | | | | | | | | | |
| | Total for state | 3 | 4 | 1,350 | 3 | 650 | 1 | 700 | | | 250 | | | 8 | 1,175 |
| 1 | Anaconda Copper Mining | 2 | 1 | 350 | 1 | 350 | | | | | 250 | | | 3 | 175 |
| 2 | Bozeman Street Railway[4] | | | | | | | | | | | | | | |
| 3 | Butte Electric Railway | 1 | 3 | 1,000 | 2 | 300 | 1 | 700 | | | | | | 5 | 1,000 |
| 4 | Great Falls Street Railway[4] | | | | | | | | | | | | | | |
| 5 | Helena Power and Light[4] | | | | | | | | | | | | | | |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] Steam power rented.
[4] Power rented.
[5] For 2½ months only.
[6] For 21 companies only, and includes 5 companies operating part of year.
[7] For 10 months only.
[8] For 11 months only.
[9] Owned but not operated.
[10] For 9 months only.

PLANTS, BY COMPANIES: 1902—Continued.

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[2] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| 2 | 270 | 2 | 270 | | | | | | | | | 193,085 | 529 | 257,447 | 705 | No.... | 69 |
| 3 | 291 | 3 | 291 | | | | | | | See p. 398. | | 737,862 | 2,022 | 989,150 | 2,710 | No.... | 70 |
| | | | | | | | | | | | | | | | | No.... | 71 |
| 14 | 3,967 | 14 | 3,967 | | | | | | | See p. 398. | | 2,515,215 | 6,891 | 3,371,602 | 9,188 | Yes... | 72 |
| 2 | 870 | 2 | 870 | | | | | | | | | 572,412 | 1,568 | 767,230 | 2,102 | No.... | 73 |
| 2 | 500 | 2 | 500 | | | | | 2 | 1,200 | See p. 398. | See p. 401. | [5]223,002 | 3,097 | [5]297,336 | 4,129 | No.... | 74 |
| | | | | | | | | | | | | 952,200 | 2,609 | 1,269,600 | 3,479 | Yes... | 75 |
| 87 | 29,518 | 68 | 10,703 | 9 | 5,204 | 10 | 13,611 | 39 | 11,662 | See p. 398. | See p. 402. | [6]83,354,048 | 230,362 | [6]111,226,532 | 307,705 | ..... | |
| 1 | 60 | 1 | 60 | | | | | | | | | 90,155 | 247 | 120,450 | 330 | No.... | 1 |
| 2 | 1,000 | 2 | 1,000 | | | | | | | | | 1,277,500 | 3,500 | 1,703,455 | 4,667 | Yes... | 2 |
| 5 | 567 | 5 | 567 | | | | | 3 | 400 | | | 587,182 | 1,609 | 782,909 | 2,125 | Yes... | 3 |
| 19 | 16,000 | 5 | 1,333 | 6 | 3,200 | 8 | 11,467 | 1 | 333 | See p. 398. | See p. 402. | 44,843,674 | 122,859 | 59,791,565 | 163,812 | Yes... | 4 |
| 5 | 1,307 | 4 | 640 | 1 | 667 | | | 3 | 2,000 | See p. 398. | See p. 402. | 6,022,500 | 16,500 | 8,030,000 | 22,000 | Yes... | 5 |
| 5 | 1,175 | 5 | 1,175 | | | | | 5 | 1,250 | See p. 398. | See p. 402. | 5,791,828 | 15,868 | 7,722,437 | 21,157 | No.... | 6 |
| 1 | 200 | 1 | 200 | | | | | | | See p. 398. | | [7]680,960 | 2,240 | [7]907,747 | 2,987 | Yes... | 7 |
| 4 | 2,714 | 2 | 570 | | | 2 | 2,144 | | | | | 6,353,149 | 17,406 | 8,516,286 | 23,332 | No.... | 8 |
| 2 | 100 | 2 | 100 | | | | | 5 | 1,675 | See p. 398. | See p. 402. | [8]2,672,000 | 8,000 | [8]3,581,769 | 10,723 | Yes... | 9 |
| | | | | | | | | 2 | 1,333 | See p. 398. | See p. 402. | 2,868,100 | 7,858 | 3,824,133 | 10,477 | No.... | 10 |
| 1 | 667 | | | 1 | 667 | | | 1 | 667 | See p. 398. | See p. 402. | [8]2,049,187 | 6,135 | [8]2,732,249 | 8,180 | No.... | 11 |
| 4 | 225 | 4 | 225 | | | | | 5 | 320 | | | 854,100 | 2,340 | 1,138,800 | 3,120 | Yes... | 12 |
| 3 | 205 | 3 | 205 | | | | | 2 | 335 | See p. 398. | | 366,400 | 1,004 | 488,533 | 1,338 | Yes... | 13 |
| [9]3 | 400 | 3 | 400 | | | | | | | | | | | | | No.... | 14 |
| [9]6 | 720 | 6 | 720 | | | | | | | See p. 398. | See p. 402. | | | | | No.... | 15 |
| [9]1 | 200 | 1 | 200 | | | | | | | | | | | | | No.... | 16 |
| 3 | 470 | 3 | 470 | | | | | | | See p. 398. | | [10]2,336,000 | 6,400 | [10]3,114,666 | 8,533 | Yes... | 17 |
| 2 | 160 | 2 | 160 | | | | | | | | | 273,750 | 750 | 365,000 | 1,000 | Yes... | 18 |
| 9 | 635 | 9 | 635 | | | | | 2 | 150 | See p. 398. | | 353,176 | 968 | 470,901 | 1,291 | Yes... | 19 |
| | | | | | | | | 2 | 1,067 | See p. 398. | See p. 402. | 1,095,000 | 3,000 | 1,460,000 | 4,333 | No.... | 20 |
| 1 | 400 | 1 | 400 | | | | | 3 | 800 | | | [7]706,060 | 2,354 | [7]941,413 | 3,138 | Yes... | 21 |
| 3 | 480 | 3 | 480 | | | | | | | | | 232,687 | 637 | 310,249 | 849 | No.... | 22 |
| 4 | 426 | 4 | 426 | | | | | 2 | 126 | | | 420,000 | 1,151 | 560,000 | 1,535 | Yes... | 23 |
| 3 | 1,407 | 2 | 737 | 1 | 670 | | | 3 | 1,206 | See p. 398. | | 3,480,640 | 9,536 | 4,663,970 | 12,778 | Yes... | 24 |
| 67 | 13,420 | 62 | 9,830 | 3 | 1,590 | 2 | 2,000 | 9 | 8,100 | See p. 399. | See p. 402. | [11]39,153,469 | 107,270 | [11]52,204,738 | 143,040 | ..... | |
| | | | | | | | | | | | | | | | | No.... | 1 |
| 19 | 2,850 | 16 | 1,260 | 3 | 1,590 | | | | | | | 3,374,391 | 9,245 | 4,499,188 | 12,326 | No.... | 2 |
| 38 | 10,000 | 36 | 8,000 | | | 2 | 2,000 | 8 | 8,000 | See p. 399. | See p. 402. | 35,040,000 | 96,000 | 46,720,000 | 128,000 | Yes... | 3 |
| | | | | | | | | | | | | | | | | No.... | 4 |
| 10 | 570 | 10 | 570 | | | | | 1 | 100 | | | 739,078 | 2,025 | 985,550 | 2,714 | Yes... | 5 |
| 14 | 2,598 | 14 | 2,598 | | | | | 9 | 1,556 | | | [12]3,016,565 | 8,807 | [12]4,022,086 | 11,742 | ..... | |
| 1 | 130 | 1 | 130 | | | | | | | | | 146,000 | 400 | 194,666 | 533 | Yes... | 1 |
| 6 | 1,241 | 6 | 1,241 | | | | | 3 | 573 | | | 969,075 | 2,655 | 1,292,100 | 3,540 | Yes... | 2 |
| 3 | 367 | 3 | 367 | | | | | 2 | 533 | | | 439,560 | 1,204 | 586,080 | 1,605 | Yes... | 3 |
| 2 | 400 | 2 | 400 | | | | | | | | | [14]141,360 | 930 | [14]188,480 | 1,240 | No.... | 4 |
| 2 | 460 | 2 | 460 | | | | | 4 | 450 | | | 1,320,570 | 3,618 | 1,760,760 | 4,824 | Yes... | 5 |
| 68 | 53,119 | 36 | 6,444 | 12 | 8,284 | 20 | 38,391 | 11 | 7,683 | See p. 399. | See p. 402. | [15]132,903,282 | 364,119 | [15]177,204,619 | 485,493 | ..... | |
| | | | | | | | | | | | | | | | | No.... | 1 |
| | | | | | | | | | | | | | | | | No.... | 2 |
| | | | | | | | | | | | | | | | | No.... | 3 |
| 1 | 110 | 1 | 110 | | | | | | | | | 262,800 | 720 | 350,400 | 960 | No.... | 4 |
| 4 | 900 | 4 | 900 | | | | | 1 | 900 | | See p. 402. | 3,489,400 | 9,560 | 4,652,533 | 12,747 | Yes... | 5 |
| 11 | 9,300 | 4 | 1,200 | 4 | 2,400 | 3 | 5,700 | | | See p. 399. | | 24,455,000 | 67,000 | 32,606,667 | 89,333 | No.... | 6 |
| 1 | 100 | 1 | 100 | | | | | 1 | 167 | | | 628,530 | 1,722 | 838,040 | 2,296 | Yes... | 7 |
| 4 | 2,150 | 2 | 300 | 2 | 1,850 | | | 3 | 1,500 | See p. 399. | | 7,248,170 | 19,858 | 9,664,470 | 26,478 | Yes... | 8 |
| 22 | 34,336 | 2 | 294 | 5 | 3,484 | 15 | 30,558 | 2 | 3,216 | See p. 399. | See p. 402. | 83,558,355 | 228,927 | 111,411,140 | 305,236 | No.... | 9 |
| 10 | 3,533 | 8 | 1,400 | | | 2 | 2,133 | 1 | 1,600 | See p. 399. | See p. 402. | [16]12,307,470 | 33,719 | [16]16,409,960 | 44,959 | Yes... | 10 |
| | | | | | | | | | | | | | | | | No.... | 11 |
| 3 | 950 | 2 | 400 | 1 | 550 | | | | | See p. 399. | | | | | | No.... | 12 |
| 3 | 1,000 | 3 | 1,000 | | | | | | | | | | | | | No.... | 13 |
| 5 | 420 | 5 | 420 | | | | | 3 | 300 | See p. 399. | See p. 402. | 390,205 | 1,070 | 520,273 | 1,427 | Yes... | 14 |
| | | | | | | | | | | | | | | | | No.... | 15 |
| 4 | 320 | 4 | 320 | | | | | | | | | 563,352 | 1,543 | 751,136 | 2,057 | Yes... | 16 |
| 6 | 1,532 | 5 | 832 | 1 | 700 | | | | | | See p. 402. | [17]2,128,202 | 5,831 | [17]2,837,602 | 7,775 | ..... | |
| 4 | 532 | 4 | 532 | | | | | | | | | 458,692 | 1,257 | 611,589 | 1,67 | Yes... | 1 |
| | | | | | | | | | | | | | | | | No.... | 2 |
| 2 | 1,000 | 1 | 300 | 1 | 700 | | | | | | | 1,669,510 | 4,574 | 2,226,013 | 6,099 | No.... | 3 |
| | | | | | | | | | | | | | | | | No.... | 4 |
| | | | | | | | | | | | See p. 402. | | | | | No.... | 5 |

[11] For 3 companies only.
[12] For 5 companies only, and includes 1 company operating part of year.
[13] Steam rented.
[14] For 5 months only.
[15] For 10 companies only.
[16] Includes output of St. Louis and Kirkwood Railroad Co.
[17] For 2 companies only.

TABLE 96.—POWER AND GENERATING

| Number. | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. Total. No. | Total. H. P. | 500 H. P. or under. No. | 500 H. P. or under. H. P. | Over 500 H. P. and under 1,000 H. P. No. | Over 500 H. P. and under 1,000 H. P. H. P. | 1,000 H. P. and over. No. | 1,000 H. P. and over. H. P. | WATER-POWER.[1] H. P. | AUXILIARY STEAM ENGINES. No. | AUXILIARY STEAM ENGINES. H. P. | BOILERS. No. | BOILERS. H. P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NEW YORK—Continued. | | | | | | | | | | | | | | |
| 25 | Lake Ontario and Riverside | | | | | | | | | | | | | | |
| 26 | Geneva, Waterloo, etc., Traction | 1 | 3 | 665 | 3 | 665 | | | | | | | | 5 | 580 |
| 27 | Mountain Lake Electric | 1 | 1 | 200 | 1 | 200 | | | | | | | | 1 | 200 |
| 28 | Bennington and Hoosick Valley | 1 | 1 | 300 | 1 | 300 | | | | | | | | 2 | 300 |
| 29 | Hornellsville Electric Railway[2] | | | | | | | | | | | | | | |
| 30 | Hornellsville and Canisteo[2] | | | | | | | | | | | | | | |
| 31 | Huntington Railroad | 1 | | | | | | | | | [4]100 | | | | |
| 32 | Ithaca Street Railway | 1 | 3 | 700 | 3 | 700 | | | | | 800 | | | 3 | 700 |
| 33 | Jamestown Street Railway | 1 | 6 | 900 | 6 | 900 | | | | | | 1 | 25 | 6 | 1,200 |
| 34 | Kingston Consolidated | 1 | 4 | 950 | 4 | 950 | | | | | | | | 4 | 904 |
| 35 | Lewiston and Youngstown Frontier[2] | | | | | | | | | | | | | | |
| 36 | Lima-Honeoye Light and Railroad | 1 | 2 | 300 | 2 | 300 | | | | | | 2 | 16 | 2 | 400 |
| 37 | Middletown-Goshen Electric | 1 | 3 | 375 | 3 | 375 | | | | | | | | 3 | 375 |
| 38 | New York and Long Island Traction[2] | | | | | | | | | | | | | | |
| 39 | Orange County Traction | 1 | 3 | 750 | 3 | 750 | | | | | | | | 4 | 400 |
| 40 | New Paltz and Poughkeepsie | 1 | 2 | 275 | 2 | 275 | | | | | | | | 2 | 200 |
| 41 | Interurban | 3 | 18 | 79,075 | 3 | 475 | | | 15 | 78,600 | | 50 | 1,433 | 90 | 22,500 |
| 42 | Central Crosstown | | | | | | | | | | | | | | |
| 43 | Fulton Street Railroad | | | | | | | | | | | | | | |
| 44 | Thirty-fourth Street Crosstown[5] | | | | | | | | | | | | | | |
| 45 | Twenty-eighth and Twenty-ninth Street Crosstown.[2] | | | | | | | | | | | | | | |
| 46 | Third Avenue Railroad[2] | | | | | | | | | | | | | | |
| 47 | Forty-second Street, Manhattanville and St. Nicholas Avenue.[2] | | | | | | | | | | | | | | |
| 48 | Dry Dock, East Broadway and Battery[2] | | | | | | | | | | | | | | |
| 49 | Kingsbridge Railway[2] | | | | | | | | | | | | | | |
| 50 | Southern Boulevard Railroad[2] | | | | | | | | | | | | | | |
| 51 | Yonkers Railroad | 1 | 6 | 1,580 | 6 | 1,580 | | | | | | | | 9 | 1,600 |
| 52 | Union Railway | 1 | 7 | 5,500 | 4 | 1,500 | 2 | 1,500 | 1 | 2,500 | | | | 11 | 3,000 |
| 53 | Tarrytown, White Plains and Mamaroneck. | 1 | 3 | 1,050 | 3 | 1,050 | | | | | | | | 5 | 625 |
| 54 | Westchester Electric Railroad | 1 | 4 | 1,400 | 4 | 1,400 | | | | | | | | 9 | 1,000 |
| 55 | Manhattan Railway (elevated) | 1 | 8 | 33,600 | 4 | 1,600 | | | 4 | 32,000 | | | | 40 | 20,800 |
| 56 | Pelham Park Railroad | | | | | | | | | | | | | | |
| 57 | City Island Railroad | | | | | | | | | | | | | | |
| 58 | Brooklyn Rapid Transit | 6 | 37 | 35,587 | 6 | 2,162 | 14 | 9,425 | 17 | 24,000 | | 9 | 225 | 92 | 22,760 |
| 59 | Coney Island and Brooklyn | 3 | 16 | 6,150 | 15 | 4,950 | | | 1 | 1,200 | | | | 18 | 6,650 |
| 60 | Van Brunt Street and Erie Basin[2] | | | | | | | | | | | | | | |
| 61 | New York and Queens County | 1 | 4 | 1,800 | 4 | 1,800 | | | | | | | | 8 | 2,250 |
| 62 | New York and North Shore | 1 | 2 | 800 | 2 | 800 | | | | | | | | 6 | 1,200 |
| 63 | Staten Island Midland | 1 | 3 | 1,050 | 3 | 1,050 | | | | | | | | 4 | 1,000 |
| 64 | Staten Island Electric[2] | | | | | | | | | | | | | | |
| 65 | Niagara Gorge Railroad[2] | | | | | | | | | | | | | | |
| 66 | Northport Traction[2] | | | | | | | | | | | | | | |
| 67 | Ogdensburg Street Railway | 1 | | | | | | | | | 320 | | | | |
| 68 | Olean, Rock City and Bradford | 1 | 2 | 1,000 | 2 | 1,000 | | | | | | 1 | 150 | 5 | 750 |
| 69 | Olean Street Railway | 1 | 2 | 450 | 2 | 450 | | | | | | | | 2 | 400 |
| 70 | Oneida Railway | | | | | | | | | | | | | | |
| 71 | Oneonta, Cooperstown and Richfield Springs. | 1 | 1 | 666 | | | 1 | 666 | | | | | | 6 | 900 |
| 72 | Westchester Traction | 1 | 2 | 300 | 2 | 300 | | | | | | | | 3 | 450 |
| 73 | Oswego Traction | | (6) | | | | | | | | | | | | |
| 74 | Peekskill Lighting and Railroad | 1 | 5 | 1,100 | 5 | 1,100 | | | | | | 5 | 60 | 4 | 600 |
| 75 | Penn Yan, Keuka Park and Branchport | 1 | 2 | 500 | 2 | 500 | | | | | | | | 2 | 500 |
| 76 | Plattsburg Traction[2] | | | | | | | | | | | | | | |
| 77 | New York and Stamford | 1 | 2 | 950 | 1 | 350 | 1 | 600 | | | | | | 4 | 560 |
| 78 | Port Jervis Electric, Gas and Railroad | 1 | 3 | 450 | 3 | 450 | | | | | | | | 3 | 450 |
| 79 | Poughkeepsie and Wappingers Falls | 1 | 3 | 750 | 3 | 750 | | | | | | | | 3 | 700 |
| 80 | Rochester Railway | 2 | 7 | 3,746 | 5 | 1,500 | 1 | 746 | 1 | 1,500 | | | | 8 | 2,263 |
| 81 | Rochester and Suburban | 1 | 3 | 495 | 3 | 495 | | | | | | | | 2 | 500 |
| 82 | Rochester and Sodus Bay | 1 | 2 | 1,000 | 2 | 1,000 | | | | | | 2 | 150 | 4 | 1,000 |
| 83 | Rochester, Charlotte and Manitou | 1 | 2 | 250 | 2 | 250 | | | | | | | | 3 | 350 |
| 84 | Rome City | 1 | 3 | 750 | 3 | 750 | | | | | | 1 | 3 | 2 | 280 |
| 85 | Schenectady Railway | 2 | 4 | 950 | 4 | 950 | | | | | | | | 5 | 1,030 |
| 86 | Sea Cliff Incline Cable | 1 | 2 | 120 | 2 | 120 | | | | | | | | 1 | 150 |
| 87 | Southfield Beach Railroad[2] | | | | | | | | | | | | | | |
| 88 | Syracuse Rapid Transit | 1 | 6 | 4,900 | 3 | 1,500 | 1 | 900 | 2 | 2,500 | | | | 9 | 2,500 |
| 89 | Syracuse and Suburban | 1 | 1 | 800 | | | 1 | 800 | | | 650 | | | 2 | 450 |
| 90 | Syracuse, Lakeside and Baldwinsville | 1 | 2 | 1,000 | 2 | 1,000 | | | | | | | | 4 | 1,000 |
| 91 | Utica and Mohawk Valley | 2 | 6 | 1,850 | 5 | 1,100 | 1 | 750 | | | | | | 10 | 1,400 |
| 92 | Black River Traction | 1 | 1 | 300 | 1 | 300 | | | | | | | | 2 | 350 |
| 93 | Elmira and Seneca Lake | 1 | 2 | 575 | 2 | 575 | | | | | | | | 2 | 500 |
| 94 | Buffalo, Gardenville and Ebenezer | 1 | (6) | | | | | | | | | | | | |
| 95 | Hamburg Railway | 1 | 3 | 950 | 3 | 950 | | | | | | | | 3 | 1,000 |
| 96 | Buffalo and Williamsville | 1 | 1 | 150 | 1 | 150 | | | | | | | | 3 | 225 |
| | NORTH CAROLINA. | | | | | | | | | | | | | | |
| | Total for state | 9 | 20 | 3,775 | 18 | 2,575 | 2 | 1,200 | | | 2,950 | 3 | 297 | 20 | 2,655 |
| 1 | Asheville Electric | 3 | 4 | 1,000 | 3 | 400 | 1 | 600 | | | 950 | | | 2 | 200 |
| 2 | Asheville Street Railroad | 1 | 4 | 275 | 4 | 275 | | | | | | | | 3 | 325 |
| 3 | Asheville and Craggy Mountain[3] | | | | | | | | | | | | | | |
| 4 | Charlotte Railway, Light and Power | 1 | 2 | 950 | 1 | 350 | 1 | 600 | | | | 2 | 285 | 4 | 480 |
| 5 | Raleigh Electric | 1 | 4 | 500 | 4 | 500 | | | | | | 1 | 12 | 3 | 600 |
| 6 | Consolidated Railways, Light and Power | 1 | 3 | 450 | 3 | 450 | | | | | | | | 4 | 450 |
| 7 | Fries Manufacturing and Power | 2 | 3 | 600 | 3 | 600 | | | | | 2,000 | | | 4 | 600 |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] Power rented.
[4] Gas engines.
[5] Operated by storage batteries.
[6] Steam power rented.

PLANTS, BY COMPANIES: 1902—Continued.

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[2] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| | | | | | | | | | | | | | | | | No. | 25 |
| 3 | 369 | 3 | 369 | | | | | | | | | 374,125 | 1,025 | 498,965 | 1,367 | No. | 26 |
| 1 | 200 | 1 | 200 | | | | | | | | | 61,152 | 582 | 81,536 | 776 | No. | 27 |
| 1 | 264 | 1 | 264 | | | | | | | | | 474,500 | 1,300 | 632,545 | 1,733 | No. | 28 |
| | | | | | | | | | | | | | | | | No. | 29 |
| | | | | | | | | | | | | | | | | No. | 30 |
| 2 | 100 | 2 | 100 | | | | | | | See p. 399. | | 56,817 | 155 | 75,756 | 206 | No. | 31 |
| 3 | 400 | 3 | 400 | | | | | 2 | 400 | See p. 399. | | 1,946,545 | 5,333 | 2,595,515 | 7,111 | Yes | 32 |
| 6 | 925 | 6 | 925 | | | | | | | | | 4,927,500 | 13,500 | 6,570,000 | 18,000 | Yes | 33 |
| 4 | 933 | 4 | 933 | | | | | | | | | 938,996 | 2,573 | 1,251,995 | 3,431 | No. | 34 |
| | | | | | | | | | | | | | | | | No. | 35 |
| 1 | 200 | 1 | 200 | | | | | 2 | 200 | | | 295,650 | 810 | 394,200 | 1,080 | Yes | 36 |
| 3 | 400 | 3 | 400 | | | | | | | | | 415,916 | 1,139 | 554,555 | 1,519 | No. | 37 |
| | | | | | | | | | | | See p. 402. | | | | | No. | 38 |
| 3 | 400 | 3 | 400 | | | | | | | | | 766,500 | 2,100 | 1,022,000 | 2,800 | Yes | 39 |
| 2 | 333 | 2 | 333 | | | | | | | | | 255,500 | 700 | 340,666 | 933 | No. | 40 |
| 10 | 6,000 | 6 | 1,400 | | | 4 | 4,600 | 11 | 53,075 | See p. 399. | See p. 402. | 147,088,664 | 402,984 | 196,118,219 | 537,312 | No. | 41 |
| | | | | | | | | | | | | | | | | No. | 42 |
| | | | | | | | | | | | | | | | | No. | 43 |
| | | | | | | | | | | | | | | | | No. | 44 |
| | | | | | | | | | | | | | | | | No. | 45 |
| | | | | | | | | | | | | | | | | No. | 46 |
| | | | | | | | | | | | | | | | | No. | 47 |
| | | | | | | | | | | | | | | | | No. | 48 |
| | | | | | | | | | | | | | | | | No. | 49 |
| | | | | | | | | | | | | | | | | No. | 50 |
| 6 | 1,535 | 6 | 1,535 | | | | | | | | | 1,898,000 | 5,200 | 2,540,545 | 6,933 | No. | 51 |
| 7 | 5,500 | 4 | 1,500 | 2 | 1,500 | 1 | 2,500 | | | | | 12,141,536 | 33,264 | 16,188,715 | 44,352 | No. | 52 |
| 3 | 1,000 | 3 | 1,000 | | | | | | | | | 1,519,568 | 4,163 | 2,026,091 | 5,551 | No. | 53 |
| 4 | 1,400 | 4 | 1,400 | | | | | | | | | 3,403,384 | 9,324 | 4,537,845 | 12,432 | No. | 54 |
| 4 | 1,340 | 4 | 1,340 | | | | | 4 | 26,800 | See p. 399. | See p. 402. | 28,297,875 | 77,528 | 37,730,500 | 103,370 | No. | 55 |
| | | | | | | | | | | | | | | | | No. | 56 |
| | | | | | | | | | | | | | | | | No. | 57 |
| 33 | 30,156 | | | 23 | 13,016 | 10 | 17,140 | | | See p. 399. | See p. 402. | 120,864,933 | 331,137 | 161,153,244 | 441,516 | No. | 58 |
| 18 | 6,200 | 17 | 5,000 | | | 1 | 1,200 | | | See p. 399. | | 13,235,587 | 37,096 | 17,317,558 | 49,728 | No. | 59 |
| | | | | | | | | | | | | | | | | No. | 60 |
| 4 | 1,750 | 4 | 1,750 | | | | | | | See p. 399. | | 7,417,522 | 20,322 | 9,890,029 | 24,096 | No. | 61 |
| 8 | 500 | 8 | 500 | | | | | | | | | 438,000 | 1,200 | 584,000 | 1,600 | No. | 62 |
| 3 | 1,350 | 3 | 1,350 | | | | | | | | | 917,100 | 2,540 | 1,222,800 | 3,387 | No. | 63 |
| | | | | | | | | | | | | | | | | No. | 64 |
| | | | | | | | | | | | | | | | | No. | 65 |
| | | | | | | | | | | | | | | | | No. | 66 |
| 1 | 333 | 1 | 333 | | | | | | | | | 613,200 | 1,680 | 817,600 | 2,240 | No. | 67 |
| 2 | 860 | 2 | 860 | | | | | | | See p. 399. | | 1,264,725 | 3,465 | 1,686,300 | 4,620 | Yes | 68 |
| 2 | 433 | 2 | 433 | | | | | | | | | 821,250 | 2,250 | 1,095,000 | 3,000 | No. | 69 |
| | | | | | | | | | | | | | | | | No. | 70 |
| 1 | 666 | | | 1 | 666 | | | | | See p. 399. | | 1,119,261 | 3,066 | 1,492,348 | 4,088 | Yes | 71 |
| 2 | 250 | 2 | 250 | | | | | | | | | 744,600 | 2,040 | 992,800 | 2,720 | No. | 72 |
| 7 | 560 | 7 | 560 | | | | | | | See p. 399. | | 1,096,410 | 3,004 | 1,461,880 | 4,005 | No. | 73 |
| 5 | 395 | 5 | 395 | | | | | 3 | 500 | See p. 399. | | 364,716 | 999 | 486,288 | 1,332 | Yes | 74 |
| 2 | 500 | 2 | 500 | | | | | | | | | 410,625 | 1,125 | 547,500 | 1,500 | No. | 75 |
| | | | | | | | | | | | | | | | | No. | 76 |
| 2 | 867 | 1 | 300 | 1 | 567 | | | | | | | [7] 2,458,240 | 6,735 | [7] 3,277,653 | 8,980 | Yes | 77 |
| 4 | 207 | 4 | 207 | | | | | 2 | 193 | | | 638,750 | 1,750 | 851,667 | 2,333 | Yes | 78 |
| 3 | 480 | 3 | 480 | | | | | | | | | 511,000 | 1,400 | 681,333 | 1,867 | Yes | 79 |
| 12 | 3,746 | 10 | 1,500 | 1 | 746 | 1 | 1,500 | | | See p. 399. | | 6,000,000 | 16,712 | 8,042,895 | 22,400 | No. | 80 |
| 3 | 400 | 3 | 400 | | | | | | | | | [8] 261,440 | 1,634 | [8] 348,640 | 2,179 | No. | 81 |
| 1 | 210 | 1 | 210 | | | | | 2 | 800 | See p. 399. | See p. 402. | 2,007,500 | 5,500 | 2,676,910 | 7,334 | No. | 82 |
| 2 | 266 | 2 | 266 | | | | | | | | | [8] 251,600 | 1,480 | [8] 335,410 | 1,973 | No. | 83 |
| [9] 1 | 30 | 1 | 30 | | | | | | | | | | | | | No. | 84 |
| 1 | 30 | 1 | 30 | | | | | 5 | 1,184 | See p. 399. | See p. 402. | 11,597,928 | 32,216 | 15,463,904 | 42,988 | Yes | 85 |
| | | | | | | | | | | | | | | | | No. | 86 |
| | | | | | | | | | | | | | | | | No. | 87 |
| 6 | 5,400 | 3 | 1,500 | 1 | 900 | 2 | 3,000 | | | | | 7,200,000 | 20,000 | 10,037,500 | 27,500 | No. | 88 |
| 3 | 1,300 | 2 | 600 | 1 | 700 | | | | | See p. 399. | | 1,078,407 | 2,955 | 1,437,876 | 3,940 | No. | 89 |
| 2 | 1,000 | 2 | 1,000 | | | | | | | | | 680,075 | 1,863 | 906,767 | 2,484 | Yes | 90 |
| 10 | 1,675 | 9 | 1,110 | 1 | 565 | | | | | | | 5,708,125 | 15,625 | 7,604,167 | 20,833 | No. | 91 |
| 4 | 667 | 4 | 667 | | | | | | | See p. 399. | See p. 402. | 903,375 | 2,475 | 1,204,500 | 3,300 | No. | 92 |
| 2 | 534 | 2 | 534 | | | | | | | | | 657,000 | 1,800 | 876,000 | 2,400 | No. | 93 |
| 2 | 200 | 2 | 200 | | | | | | | | | 203,000 | 556 | 270,667 | 741 | No. | 94 |
| 4 | 1,030 | 4 | 1,030 | | | | | | | | | 663,498 | 1,818 | 884,664 | 2,424 | No. | 95 |
| 1 | 100 | 1 | 100 | | | | | | | | | 67,820 | 188 | 91,615 | 251 | Yes | 96 |
| 19 | 2,820 | 19 | 2,820 | | | | | 11 | 4,036 | See p. 399. | See p. 402. | [10] 4,419,748 | 12,109 | [10] 5,893,111 | 16,145 | | |
| 2 | 650 | 2 | 650 | | | | | 2 | 530 | See p. 399. | See p. 402. | 185,274 | 508 | 247,032 | 677 | Yes | 1 |
| 3 | 290 | 3 | 290 | | | | | | | | | 492,750 | 1,350 | 657,000 | 1,800 | Yes | 2 |
| | | | | | | | | | | | | | | | | No. | 3 |
| 5 | 910 | 5 | 910 | | | | | 4 | 480 | See p. 399. | | 912,464 | 2,499 | 1,216,619 | 3,332 | Yes | 4 |
| 3 | 370 | 3 | 370 | | | | | 1 | 426 | | | 600,000 | 1,644 | 800,000 | 2,192 | Yes | 5 |
| 4 | 300 | 4 | 300 | | | | | | | | | 485,000 | 1,329 | 646,780 | 1,772 | Yes | 6 |
| 2 | 300 | 2 | 300 | | | | | 4 | 2,600 | | See p. 402. | 1,744,260 | 4,779 | 2,325,680 | 6,372 | Yes | 7 |

[7] For 11 months only.
[8] For 5¼ months only; power rented during remainder of year.
[9] For lighting purposes only.
[10] For 6 companies only.

TABLE 96.—POWER AND GENERATING

| Number | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. Total. No. | Total. H. P. | 500 H. P. or under. No. | 500 H. P. or under. H. P. | Over 500 H. P. and under 1,000 H. P. No. | Over 500 H. P. and under 1,000 H. P. H. P. | 1,000 H. P. and over. No. | 1,000 H. P. and over. H. P. | WATER-POWER.[1] H. P. | AUXILIARY STEAM ENGINES. No. | AUXILIARY STEAM ENGINES. H. P. | BOILERS. No. | BOILERS. H. P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OHIO. | | | | | | | | | | | | | | |
| | Total for state | 90 | 250 | 129,830 | 156 | 42,160 | 67 | 47,070 | 27 | 40,600 | [3]850 | 8 | 670 | 369 | 97,978 |
| 1 | Ashtabula Rapid Transit | 1 | 2 | 250 | 2 | 250 | | | | | | | | 2 | 380 |
| 2 | Pennsylvania and Ohio | 1 | 2 | 1,500 | | | 2 | 1,500 | | | | | | 2 | 1,000 |
| 3 | Ohio Central Traction | 1 | 2 | 500 | 2 | 500 | | | | | | | | 2 | 500 |
| 4 | Consolidated | 1 | 2 | 350 | 2 | 350 | | | | | | | | 3 | 350 |
| 5 | Stark Electric | 1 | 2 | 1,600 | | | 2 | 1,600 | | | | 2 | 80 | 3 | 1,050 |
| 6 | Canton-Akron | 4 | 3 | 2,800 | | | 2 | 1,400 | 1 | 1,400 | | 1 | 50 | 6 | 1,800 |
| 7 | Chillicothe Railroad, Light and Power | 1 | 3 | 700 | 3 | 700 | | | | | | | | 7 | 700 |
| 8 | Cincinnati Traction | 9 | 32 | 19,490 | 10 | 1,640 | 15 | 10,850 | 7 | 7,000 | | | | 56 | 15,310 |
| 9 | Price Hill Incline Plane | 1 | 4 | 1,600 | 4 | 1,600 | | | | | | 1 | 500 | 2 | 2,500 |
| 10 | Mill Creek Valley | 1 | 4 | 2,120 | 2 | 520 | 2 | 1,600 | | | | | | 4 | 1,600 |
| 11 | Cincinnati, Dayton and Toledo | 6 | 9 | 3,225 | 7 | 2,025 | 2 | 1,200 | | | | | | 15 | 2,265 |
| 12 | Cincinnati, Lawrenceburg and Aurora | 1 | 2 | 1,300 | | | 2 | 1,300 | | | | | | 4 | 1,000 |
| 13 | Cleveland Electric Railway | 2 | 21 | 16,925 | 10 | 2,175 | 8 | 5,450 | 3 | 9,300 | | | | 30 | 10,265 |
| 14 | Cleveland City Railway | 1 | 8 | 9,500 | 4 | 2,000 | | | 4 | 7,500 | | | | 11 | 5,332 |
| 15 | Cleveland, Elyria and Western | 2 | 6 | 2,800 | 4 | 1,300 | 2 | 1,500 | | | | | | 8 | 2,300 |
| 16 | Eastern Ohio Traction | 2 | 7 | 2,600 | 5 | 1,400 | 2 | 1,200 | | | | | | 7 | 2,100 |
| 17 | Cleveland, Painesville and Eastern | 1 | 3 | 1,500 | 2 | 700 | 1 | 800 | | | | | | 4 | 1,000 |
| 18 | Northern Ohio Traction | 4 | 12 | 5,100 | 9 | 2,500 | 2 | 1,400 | 1 | 1,200 | | | | 19 | 2,350 |
| 19 | Columbus Railway | 2 | 8 | 5,750 | 3 | 900 | 3 | 2,150 | 2 | 2,700 | | | | 19 | 4,700 |
| 20 | Columbus, London and Springfield | 2 | 4 | 3,250 | 2 | 850 | | | 2 | 2,400 | | | | 10 | 1,625 |
| 21 | Columbus, Buckeye Lake and Newark | 1 | 2 | 2,500 | | | | | 2 | 2,500 | | 1 | 10 | 4 | 1,400 |
| 22 | City Railway | 1 | 5 | 2,125 | 5 | 2,125 | | | | | | | | 8 | 1,200 |
| 23 | Peoples Railway | 1 | 3 | 1,800 | 2 | 800 | | | 1 | 1,000 | | | | 7 | 1,225 |
| 24 | Oakwood Street | 1 | 2 | 600 | 2 | 600 | | | | | | | | 3 | 750 |
| 25 | Dayton and Western | 1 | 2 | 800 | 2 | 800 | | | | | | | | 4 | 1,000 |
| 26 | Dayton and Northern | 1 | 2 | 800 | 2 | 800 | | | | | | | | 3 | 750 |
| 27 | Dayton, Springfield and Urbana | 2 | 4 | 1,900 | 4 | 1,900 | | | | | | | | 5 | 950 |
| 28 | Dayton and Troy | 2 | 2 | 900 | 2 | 900 | | | | | | | | 4 | 1,200 |
| 29 | Dayton and Xenia | 2 | 4 | 1,300 | 4 | 1,300 | | | | | | | | 6 | 2,500 |
| 30 | Peoples Gas and Electric | 1 | 2 | 300 | 2 | 300 | | | | | | | | 4 | 350 |
| 31 | Delaware Electric Railway[7] | | | | | | | | | | | | | | |
| 32 | United Electric | 1 | 5 | 465 | 5 | 465 | | | | | | | | 5 | 540 |
| 33 | East Liverpool Railway | 1 | 3 | 1,320 | 2 | 600 | 1 | 720 | | | | | | 6 | 1,000 |
| 34 | Lancaster Traction | 1 | | | | | | | | | [8]250 | | | | |
| 35 | Lima Railway and Light[7] | | | | | | | | | | | | | | |
| 36 | Western Ohio Railway | 1 | 7 | 4,025 | 3 | 375 | 2 | 1,250 | 2 | 2,400 | | | | 8 | 3,000 |
| 37 | Lorain Street Railway | 1 | 4 | 875 | 4 | 875 | | | | | | | | 4 | 1,000 |
| 38 | Mansfield Railway, Light and Power | 1 | 3 | 1,425 | 2 | 675 | 1 | 750 | | | | 1 | 15 | 5 | 1,450 |
| 39 | Marion Street Railway[7] | | | | | | | | | | | | | | |
| 40 | Mt. Vernon Electric Railway[7] | | | | | | | | | | | | | | |
| 41 | Newark and Granville | 1 | 2 | 275 | 2 | 275 | | | | | | | | 3 | 350 |
| 42 | Tuscarawas Traction | 1 | 4 | 460 | 4 | 460 | | | | | | | | 4 | 500 |
| 43 | Ohio River Railway and Power | 1 | 2 | 500 | 2 | 500 | | | | | | | | 2 | 600 |
| 44 | Portsmouth Street Railroad | 1 | 5 | 600 | 5 | 600 | | | | | | | | 8 | 750 |
| 45 | Salem Electric Railway[7] | | | | | | | | | | | | | | |
| 46 | Springfield Railway | 1 | 3 | 900 | 3 | 900 | | | | | | | | 4 | 900 |
| 47 | Springfield and Xenia | 3 | 2 | 700 | 2 | 700 | | | | | | | | 2 | 800 |
| 48 | Steubenville and Pleasant Heights[7] | | | | | | | | | | | | | | |
| 49 | Steubenville Traction and Light | 1 | 3 | 1,050 | 3 | 1,050 | | | | | | | | 3 | 816 |
| 50 | Electric Railway and Power[7] | | | | | | | | | | | | | | |
| 51 | Tiffin, Fostoria and Eastern | 1 | 2 | 600 | 2 | 600 | | | | | | 1 | 5 | 3 | 800 |
| 52 | Toledo Railways and Light | 1 | 9 | 8,150 | | | 7 | 4,950 | 2 | 3,200 | | | | 12 | 5,600 |
| 53 | Toledo, Bowling Green and Southern | 3 | 6 | 1,775 | 5 | 1,125 | 1 | 650 | | | | | | 9 | 1,550 |
| 54 | Toledo, Fostoria and Findlay | 1 | 2 | 700 | 2 | 700 | | | | | | 1 | 10 | 2 | 800 |
| 55 | Toledo and Western | 1 | 3 | 2,000 | 1 | 500 | 2 | 1,500 | | | | | | 4 | 1,040 |
| 56 | Lake Shore | 4 | 10 | 5,600 | 2 | 300 | 8 | 5,300 | | | | | | 11 | 4,100 |
| 57 | Toledo and Maumee Valley | 1 | 1 | 500 | 1 | 500 | | | | | 600 | | | 4 | 480 |
| 58 | Wellston and Jackson Belt | 1 | 2 | 350 | 2 | 350 | | | | | | | | 3 | 450 |
| 59 | Worthington, Clintonville and Columbus.[7] | | | | | | | | | | | | | | |
| 60 | Youngstown Park and Falls[7] | | | | | | | | | | | | | | |
| 61 | Youngstown-Sharon Railway and Light | 3 | | | | | | | | | | | | | |
| 62 | Mahoning Valley | 2 | 8 | 1,675 | 8 | 1,675 | | | | | | | | 5 | 2,000 |
| 63 | Zanesville Electric Railway[7] | | | | | | | | | | | | | | |
| | OREGON. | | | | | | | | | | | | | | |
| | Total for state | 4 | 12 | 4,250 | 11 | 3,150 | | | 1 | 1,100 | | 1 | 50 | 21 | 2,900 |
| 1 | Astoria Electric | 1 | 1 | 125 | 1 | 125 | | | | | | | | 2 | 150 |
| 2 | Portland Railway[7] | 1 | [13]2 | 600 | 2 | 600 | | | | | | | | [13]4 | 500 |
| 3 | City and Suburban | 1 | 6 | 2,900 | 5 | 1,800 | | | 1 | 1,100 | | 1 | 50 | 11 | 1,750 |
| 4 | Portland City and Oregon[7] | | | | | | | | | | | | | | |
| 5 | Salem Light, Power and Traction | 1 | 3 | 625 | 3 | 625 | | | | | | | | 4 | 500 |
| 6 | Union Street and Suburban[14] | | | | | | | | | | | | | | |
| | PENNSYLVANIA. | | | | | | | | | | | | | | |
| | Total for state | 90 | 262 | 137,838 | 171 | 44,508 | 66 | 50,430 | 25 | 42,900 | [15]1,200 | 11 | 117 | 440 | 97,643 |
| 1 | Lehigh Valley Traction | 1 | 4 | 3,000 | | | 4 | 3,000 | | | | | | 13 | 3,000 |
| 2 | Philadelphia and Lehigh Valley | 3 | 8 | 1,750 | 8 | 1,750 | | | | | | | | 13 | 2,750 |
| 3 | Allentown and Kutztown Traction | 1 | 3 | 850 | 3 | 850 | | | | | | | | 4 | 600 |
| 4 | Altoona and Logan Valley | 1 | 3 | 1,380 | 2 | 600 | 1 | 780 | | | | | | 6 | 1,300 |
| 5 | Bangor and East Bangor[7] | | | | | | | | | | | | | | |
| 6 | Beaver Valley Traction | 1 | 3 | 1,000 | 3 | 1,000 | | | | | | | | 3 | 900 |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] Includes 2 gas engines of 250 horsepower.
[4] For 51 companies only, and includes 5 companies operating part of year.
[5] For 7 months only.
[6] For 9 months only.
[7] Power rented.
[8] Gas engines.

PLANTS, BY COMPANIES: 1902—Continued.

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[2] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| 272 | 98,049 | 226 | 52,037 | 27 | 17,663 | 19 | 28,349 | 50 | 23,314 | See p. 399..... | See p. 402..... | [4]185,824,282 | 524,016 | [4]247,449,394 | 697,919 | ..... | |
| 2 | 250 | 2 | 250 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 788,400 | 2,160 | 1,051,200 | 2,880 | No.... | 1 |
| 2 | 1,000 | 2 | 1,000 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 399..... | See p. 402..... | 1,576,800 | 4,320 | 2,102,400 | 5,760 | No.... | 2 |
| 2 | 400 | 2 | 400 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 123,005 | 337 | 163,276 | 447 | Yes... | 3 |
| 2 | 358 | 2 | 358 | ..... | ..... | ..... | ..... | 2 | 380 | ..... | ..... | 33,600 | 92 | 44,800 | 123 | Yes... | 4 |
| 2 | 81 | 2 | 81 | ..... | ..... | ..... | ..... | 2 | 1,543 | See p. 399..... | ..... | 281,050 | 770 | 376,607 | 1,027 | Yes... | 5 |
| | | | | ..... | ..... | ..... | ..... | 3 | 2,400 | See p. 399..... | See p. 402..... | [5]4,922,000 | 23,000 | [5]6,562,667 | 30,666 | No.... | 6 |
| 4 | 457 | 4 | 457 | ..... | ..... | ..... | ..... | 2 | 320 | ..... | ..... | 182,500 | 500 | 253,334 | 667 | Yes... | 7 |
| 34 | 18,690 | 25 | 10,000 | 2 | 1,340 | 7 | 7,350 | ..... | ..... | See p. 399..... | ..... | 31,111,140 | 85,236 | 41,481,520 | 113,648 | No.... | 8 |
| 2 | 500 | 2 | 500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 57,305 | 157 | 76,285 | 209 | No.... | 9 |
| 4 | 1,735 | 2 | 485 | 2 | 1,250 | ..... | ..... | ..... | ..... | See p. 399..... | ..... | 131,400 | 360 | 175,200 | 480 | No.... | 10 |
| 10 | 3,427 | 10 | 3,427 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 399..... | See p. 402..... | 7,243,060 | 19,844 | 9,219,900 | 25,260 | Yes... | 11 |
| 2 | 800 | 2 | 800 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,788,500 | 4,900 | 2,384,545 | 6,533 | No.... | 12 |
| 31 | 11,540 | 28 | 3,540 | ..... | ..... | 3 | 8,000 | ..... | ..... | See p. 399..... | ..... | 22,863,774 | 62,641 | 30,485,033 | 83,521 | No.... | 13 |
| 8 | 7,705 | 4 | 1,005 | ..... | ..... | 4 | 6,700 | ..... | ..... | See p. 399..... | ..... | 15,826,400 | 43,360 | 21,207,376 | 58,102 | Yes... | 14 |
| 6 | 2,800 | 4 | 1,300 | 2 | 1,500 | ..... | ..... | ..... | ..... | ..... | ..... | 4,161,000 | 11,400 | 5,548,000 | 15,200 | Yes... | 15 |
| 6 | 2,800 | 3 | 800 | 3 | 2,000 | ..... | ..... | 1 | 415 | See p. 399..... | See p. 402..... | ..... | ..... | ..... | ..... | No.... | 16 |
| 3 | 1,200 | 2 | 533 | 1 | 667 | ..... | ..... | ..... | ..... | See p. 399..... | ..... | 1,571,973 | 4,306 | 2,095,964 | 5,741 | Yes... | 17 |
| 10 | 3,862 | 8 | 2,263 | 1 | 533 | 1 | 1,066 | 3 | 786 | ..... | ..... | 21,247,380 | 58,212 | 28,329,840 | 77,616 | Yes... | 18 |
| 8 | 5,750 | 3 | 900 | 3 | 2,150 | 2 | 2,700 | ..... | ..... | ..... | ..... | 10,220,000 | 28,000 | 13,626,666 | 37,333 | Yes... | 19 |
| 3 | 2,177 | ..... | ..... | 3 | 2,177 | ..... | ..... | 2 | 1,600 | See p. 399..... | See p. 402..... | 3,350,000 | 9,178 | 4,490,595 | 12,303 | No.... | 20 |
| 2 | 100 | 2 | 100 | ..... | ..... | ..... | ..... | 2 | 2,300 | See p. 399..... | See p. 402..... | [6]2,295,000 | 8,500 | [6]3,082,666 | 11,333 | No.... | 21 |
| 5 | 1,675 | 5 | 1,675 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3,613,500 | 9,900 | 4,818,000 | 13,200 | No.... | 22 |
| 3 | 1,800 | 2 | 600 | ..... | ..... | 1 | 1,200 | ..... | ..... | ..... | ..... | 2,188,623 | 5,996 | 2,918,184 | 7,994 | Yes... | 23 |
| 2 | 500 | 2 | 500 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 399..... | ..... | 1,204,500 | 3,300 | 1,606,000 | 4,400 | No.... | 24 |
| 3 | 800 | 3 | 800 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 399..... | ..... | 876,000 | 2,400 | 1,168,000 | 3,200 | No.... | 25 |
| | | | | ..... | ..... | ..... | ..... | 2 | 666 | See p. 399..... | ..... | 574,875 | 1,575 | 766,500 | 2,100 | No.... | 26 |
| 4 | 2,000 | 4 | 2,000 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 399..... | ..... | 908,680 | 2,490 | 1,211,573 | 3,320 | No.... | 27 |
| 2 | 535 | 2 | 535 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 399..... | ..... | 986,960 | 2,704 | 1,315,825 | 3,605 | No.... | 28 |
| 2 | 900 | 2 | 900 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,266,550 | 3,470 | 1,688,490 | 4,626 | No.... | 29 |
| 3 | 162 | 3 | 162 | ..... | ..... | ..... | ..... | 1 | 200 | ..... | ..... | 178,850 | 490 | 238,466 | 653 | Yes... | 30 |
| | | | | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 31 |
| 3 | 182 | 3 | 182 | ..... | ..... | ..... | ..... | 4 | 198 | ..... | ..... | 204,984 | 562 | 273,312 | 749 | Yes... | 32 |
| 3 | 1,260 | 2 | 560 | 1 | 700 | ..... | ..... | ..... | ..... | ..... | ..... | 1,791,420 | 4,908 | 2,388,560 | 6,544 | Yes... | 33 |
| 3 | 341 | 3 | 341 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 195,275 | 535 | 260,700 | 714 | No.... | 34 |
| | | | | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 35 |
| 3 | 200 | 3 | 200 | ..... | ..... | ..... | ..... | 4 | 3,120 | See p. 399..... | See p. 402..... | [9]2,556,945 | 7,005 | [9]3,409,260 | 9,340 | No.... | 36 |
| 5 | 1,000 | 5 | 1,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,537,862 | 4,213 | 2,050,483 | 5,618 | No.... | 37 |
| 4 | 1,300 | 4 | 1,300 | ..... | ..... | ..... | ..... | 3 | 1,629 | See p. 399..... | ..... | 929,655 | 2,547 | 1,239,540 | 3,396 | Yes... | 38 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 39 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 40 |
| 2 | 250 | 2 | 250 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [10]575,140 | 2,256 | [10]766,853 | 2,975 | No.... | 41 |
| 6 | 660 | 6 | 660 | ..... | ..... | ..... | ..... | 1 | 120 | ..... | ..... | 1,204,500 | 3,300 | 1,606,000 | 4,400 | Yes... | 42 |
| 2 | 600 | 2 | 600 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 438,000 | 1,200 | 584,000 | 1,600 | Yes... | 43 |
| 6 | 350 | 6 | 350 | ..... | ..... | ..... | ..... | 2 | 300 | ..... | ..... | 693,500 | 1,900 | 924,667 | 2,533 | Yes... | 44 |
| 1 | 80 | 1 | 80 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 45 |
| 3 | 975 | 3 | 975 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,849,106 | 5,066 | 2,465,474 | 6,754 | No.... | 46 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 800 | See p. 399..... | See p. 402..... | [11]654,075 | 4,275 | [11]872,100 | 5,700 | No.... | 47 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 48 |
| 2 | 733 | 2 | 733 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 402..... | 779,440 | 2,135 | 1,045,900 | 2,847 | No.... | 49 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 50 |
| 2 | 1,146 | ..... | ..... | 2 | 1,146 | ..... | ..... | ..... | ..... | ..... | ..... | 554,283 | 1,519 | 639,044 | 2,024 | Yes... | 51 |
| 29 | 7,823 | 25 | 4,490 | 3 | 2,000 | 1 | 1,333 | 3 | 1,067 | See p. 399..... | ..... | 10,133,893 | 27,764 | 13,511,857 | 37,018 | Yes... | 52 |
| 6 | 1,006 | 6 | 1,006 | ..... | ..... | ..... | ..... | 3 | 720 | See p. 399..... | ..... | 1,263,447 | 3,461 | 1,684,596 | 4,615 | Yes... | 53 |
| 2 | 660 | 2 | 660 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 399..... | ..... | 470,850 | 1,290 | 627,800 | 1,720 | Yes... | 54 |
| 2 | 96 | 2 | 96 | ..... | ..... | ..... | ..... | 3 | 1,920 | See p. 399..... | See p. 402..... | 1,314,000 | 3,600 | 1,752,000 | 4,800 | No.... | 55 |
| 6 | 2,500 | 2 | 300 | 4 | 2,200 | ..... | ..... | 4 | 2,750 | See p. 399..... | See p. 402..... | 8,030,000 | 22,000 | 10,706,666 | 29,333 | No.... | 56 |
| 2 | 800 | 2 | 800 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 399..... | ..... | 638,750 | 1,750 | 851,667 | 2,334 | Yes... | 57 |
| 2 | 533 | 2 | 533 | ..... | ..... | ..... | ..... | 1 | 80 | ..... | ..... | 1,418,332 | 3,932 | 1,901,253 | 5,208 | Yes... | 58 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 59 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 402..... | ..... | ..... | ..... | ..... | No.... | 60 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 402..... | ..... | ..... | ..... | ..... | No.... | 61 |
| 11 | 1,550 | 11 | 1,550 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 399..... | ..... | 7,018,000 | 19,200 | 9,398,750 | 25,750 | No.... | 62 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 63 |
| 15 | 3,415 | 13 | 1,715 | 1 | 600 | 1 | 1,100 | 4 | 1,000 | See p. 400..... | ..... | [12]7,144,692 | 19,574 | [12]9,526,135 | 26,099 | ..... | |
| 1 | 100 | 1 | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 438,000 | 1,200 | 584,000 | 1,600 | No.... | 1 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | ..... | ..... | ..... | ..... | ..... | No.... | 2 |
| 8 | 2,940 | 6 | 1,240 | 1 | 600 | 1 | 1,100 | 1 | 600 | ..... | ..... | 5,881,245 | 16,113 | 7,841,660 | 21,484 | No.... | 3 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 4 |
| 6 | 375 | 6 | 375 | ..... | ..... | ..... | ..... | 3 | 400 | ..... | ..... | 825,447 | 2,261 | 1,100,475 | 3,015 | Yes... | 5 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 6 |
| 265 | 121,468 | 179 | 39,133 | 61 | 43,894 | 25 | 38,441 | 13 | 6,443 | See p. 400..... | See p. 402..... | [16]269,885,945 | 743,610 | [16]361,188,585 | 994,227 | ..... | |
| 4 | 3,000 | ..... | ..... | 4 | 3,000 | ..... | ..... | ..... | ..... | See p. 400..... | ..... | 5,539,600 | 15,177 | 7,425,745 | 20,345 | Yes... | 1 |
| 8 | 1,873 | 8 | 1,873 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 909,640 | 2,492 | 1,219,356 | 3,340 | No.... | 2 |
| 3 | 565 | 3 | 565 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | ..... | 774,536 | 2,122 | 1,032,585 | 2,829 | No.... | 3 |
| 3 | 1,380 | 2 | 600 | 1 | 780 | ..... | ..... | ..... | ..... | See p. 400..... | ..... | 2,642,952 | 7,241 | 3,523,938 | 9,654 | No.... | 4 |
| [13]1 | 133 | 1 | 133 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 5 |
| 3 | 1,000 | 3 | 1,000 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2,737,500 | 7,500 | 3,650,000 | 10,000 | Yes... | 6 |

[9] For 10 months only.
[10] For 8¼ months only.
[11] For 5 months only.
[12] For 3 companies only.
[13] Owned, but not operated.
[14] Operated by steam locomotive.
[15] Includes 3 gas engines of 1,000 horsepower.
[16] For 51 companies only, and includes 4 companies operating part of year.

TABLE 96.—POWER AND GENERATING

| Number. | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. | | | | | | | | WATER-POWER.[1] | AUXILIARY STEAM ENGINES. | | BOILERS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | |
| | | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | H. P. | No. | H. P. | No. | H. P. |
| | PENNSYLVANIA—Continued. | | | | | | | | | | | | | | |
| 7 | Riverview Electric Street Railway[3] | | | | | | | | | | | | | | |
| 8 | Patterson Heights Street Railway[3] | | | | | | | | | | | | | | |
| 9 | Columbia and Montour | 1 | 2 | 600 | 2 | 600 | | | | | | | | 4 | 1,400 |
| 10 | Bradford Electric Street Railway[3] | | | | | | | | | | | | | | |
| 11 | Butler Passenger Railway[3] | | | | | | | | | | | | | | |
| 12 | Carlisle and Mt. Holly[3] | | | | | | | | | | | | | | |
| 13 | Cumberland Valley Traction | 1 | 3 | 800 | 3 | 800 | | | | | | | | 3 | 450 |
| 14 | Chester Traction | 1 | 6 | 2,775 | 4 | 925 | 1 | 650 | 1 | 1,200 | | | | 11 | 1,900 |
| 15 | Media, Middletown, Aston and Chester | 2 | 1 | 300 | 1 | 300 | | | | | | | | 2 | 500 |
| 16 | Philadelphia and Chester Railway[3] | | | | | | | | | | | | | | |
| 17 | Connellsville Suburban[3] | | | | | | | | | | | | | | |
| 18 | Newtown Electric Street Railway | 1 | 5 | 950 | 5 | 950 | | | | | | | | 5 | 800 |
| 19 | Doylestown and Easton | 1 | 1 | 125 | 1 | 125 | | | | | | | | 1 | 125 |
| 20 | Doylestown and Willow Grove | 1 | 2 | 400 | 2 | 400 | | | | | | | | 2 | 500 |
| 21 | Dubois Traction[3] | | | | | | | | | | | | | | |
| 22 | Easton and Nazareth | 1 | 2 | 900 | 2 | 900 | | | | | | | | 3 | 750 |
| 23 | Erie Electric Motor | 1 | 4 | 850 | 4 | 850 | | | | | | | | 6 | 900 |
| 24 | Erie Traction | 1 | 2 | 1,200 | | | 2 | 1,200 | | | | | | 6 | 1,200 |
| 25 | Erie Rapid Transit | 1 | 2 | 700 | 2 | 700 | | | | | | | | 2 | 500 |
| 26 | Franklin Electric Street Railway[3] | | | | | | | | | | | | | | |
| 27 | Gettysburg Transit[3] | | | | | | | | | | | | | | |
| 28 | Hanover and McSherrystown[3] | | | | | | | | | | | | | | |
| 29 | Lehigh Traction | 1 | 4 | 850 | 4 | 850 | | | | | | 1 | 7 | 6 | 1,000 |
| 30 | Harrisburg Traction | 2 | 5 | 1,650 | 5 | 1,650 | | | | | | | | 10 | 1,400 |
| 31 | Harrisburg and Mechanicsburg[3] | | | | | | | | | | | | | | |
| 32 | Cambria Incline Plane | 1 | 1 | 600 | | | 1 | 600 | | | | | | 3 | 750 |
| 33 | Johnstown Passenger Railway | 1 | 2 | 1,500 | | | 2 | 1,500 | | | | | | 4 | 1,268 |
| 34 | Kittanning and Ford City[3] | | | | | | | | | | | | | | |
| 35 | Conestoga Traction | 2 | 8 | 1,825 | 8 | 1,825 | | | | | | | | 14 | 1,850 |
| 36 | Lebanon Valley[3] | | [4]2 | 715 | 2 | 715 | | | | | | | | [4]3 | 750 |
| 37 | Lewistown and Reedsville | 1 | 2 | 400 | 2 | 400 | | | | | | | | 3 | 650 |
| 38 | Susquehanna Traction | 1 | 2 | 200 | 2 | 200 | | | | | | | | 2 | 220 |
| 39 | Lykens and Williams Valley | 1 | 2 | 300 | 2 | 300 | | | | | | | | 2 | 300 |
| 40 | Highland Grove[3] | | | | | | | | | | | | | | |
| 41 | Schuylkill Traction | 2 | 5 | 1,300 | 5 | 1,300 | | | | | | | | 7 | 1,200 |
| 42 | Mauch Chunk, Lehighton and Slatington. | 2 | 1 | 250 | 1 | 250 | | | | | 200 | | | 1 | 300 |
| 43 | Meadville Traction | 1 | 2 | 250 | 2 | 250 | | | | | | | | 2 | 250 |
| 44 | Lewisburg, Milton and Watsontown[3] | | [4]1 | 425 | 1 | 425 | | | | | | | | [4]1 | 200 |
| 45 | Montoursville Passenger[3] | | | | | | | | | | | | | | |
| 46 | New Castle Traction[3] | | | | | | | | | | | | | | |
| 47 | New Castle and Lowell | 1 | 3 | 750 | 3 | 750 | | | | | | | | 2 | 800 |
| 48 | Schuylkill Valley Traction | 3 | 5 | 2,600 | 4 | 1,350 | | | 1 | 1,250 | | | | 9 | 1,590 |
| 49 | Lansdale and Norristown | 1 | 2 | 600 | 2 | 600 | | | | | | | | 3 | 600 |
| 50 | Peoples Street Railway | 1 | 2 | 500 | 2 | 500 | | | | | | | | 2 | 500 |
| 51 | Citizens Traction | | 2 | 300 | 2 | 300 | | | | | [5]400 | | | 2 | 500 |
| 52 | Oil City Street Railway[3] | | | | | | | | | | | | | | |
| 53 | Union Traction | 8 | 42 | 48,950 | 10 | 4,000 | 11 | 7,150 | 21 | 37,800 | | 8 | 80 | 110 | 30,000 |
| 54 | Southwestern Street Railway | 1 | 2 | 600 | 2 | 600 | | | | | | | | 4 | 600 |
| 55 | Philadelphia, Bristol and Trenton | 1 | 2 | 400 | 2 | 400 | | | | | | | | 3 | 400 |
| 56 | Philadelphia and West Chester Traction | 2 | 2 | 1,200 | | | 2 | 1,200 | | | | | | 3 | 1,250 |
| 57 | Holmesburg, Tacony and Frankford | 1 | 4 | 1,400 | 4 | 1,400 | | | | | | | | 4 | 980 |
| 58 | Fairmount Park Transportation | 1 | 3 | 2,250 | | | 3 | 2,250 | | | | 1 | 10 | 6 | 1,500 |
| 59 | Delaware County and Philadelphia | 1 | 1 | 500 | 1 | 500 | | | | | | | | 4 | 530 |
| 60 | Montgomery and Chester[3] | | | | | | | | | | | | | | |
| 61 | Pittsburg Railways | 7 | 47 | 33,000 | 14 | 4,700 | 33 | 28,300 | | | | | | 60 | 16,500 |
| 62 | St. Clair Incline Plane | 1 | 1 | 50 | 1 | 50 | | | | | | | | 3 | 125 |
| 63 | Duquesne Incline Plane | 1 | 2 | 200 | 2 | 200 | | | | | | | | 2 | 250 |
| 64 | Pittsburg and Castle Shannon | 1 | 3 | 225 | 3 | 225 | | | | | | | | 4 | 300 |
| 65 | Monongahela Incline Plane | 1 | 2 | 600 | 2 | 600 | | | | | | | | 5 | 500 |
| 66 | Penn Incline Plane | 1 | 2 | 450 | 2 | 450 | | | | | | | | 4 | 340 |
| 67 | Pittsburg, McKeesport and Greensburg[3] | 1 | | | | | | | | | | | | | |
| 68 | Pittsburg, McKeesport and Connellsville | 4 | 8 | 1,220 | 8 | 1,220 | | | | | | | | 10 | 1,250 |
| 69 | Pottstown Passenger Railway[3] | | | | | | | | | | | | | | |
| 70 | Ringing Rocks Electric | 1 | 2 | 300 | 2 | 300 | | | | | | | | 2 | 350 |
| 71 | Pottsville Union Traction | 1 | 3 | 1,500 | 3 | 1,500 | | | | | | | | 6 | 1,500 |
| 72 | Punxsutawney Street Railway | 1 | 2 | 300 | 2 | 300 | | | | | | | | 3 | 375 |
| 73 | United Traction | 2 | 4 | 2,900 | 1 | 350 | 2 | 1,300 | 1 | 1,250 | | | | ([10]) | |
| 74 | Waverly, Sayre and Athens[3] | 1 | | | | | | | | | | | | | |
| 75 | Neversink Mountain Railroad[3] | | | | | | | | | | | | | | |
| 76 | Mt. Penn Gravity Railway[3] | | | | | | | | | | | | | | |
| 77 | Scranton Railway | 2 | 9 | 3,598 | 7 | 1,448 | 1 | 750 | 1 | 1,400 | | | | 12 | 3,690 |
| 78 | Shamokin and Mt. Carmel | 1 | 3 | 900 | 3 | 900 | | | | | | | | 6 | 750 |
| 79 | Shamokin and Edgewood[3] | | | | | | | | | | | | | | |
| 80 | Stroudsburg Passenger[3] | | | | | | | | | | | | | | |
| 81 | Sunbury and Northumberland | 1 | 1 | 100 | 1 | 100 | | | | | | | | 1 | 100 |
| 82 | Tamaqua and Lansford | 1 | 2 | 650 | 2 | 650 | | | | | | | | 2 | 500 |
| 83 | Tarentum Traction Passenger | 1 | 2 | 200 | 2 | 200 | | | | | | | | 2 | 250 |
| 84 | Titusville Electric Traction | 1 | 2 | 750 | 1 | 200 | 1 | 550 | | | | 1 | 20 | 3 | 450 |
| 85 | Warren Street Railway | 1 | | | | | | | | | [9]600 | | | | |
| 86 | Washington Electric Railway[3] | | | | | | | | | | | | | | |
| 87 | West Chester Street Railway[3] | | | | | | | | | | | | | | |
| 88 | Wilkesbarre and Wyoming Valley | 2 | 7 | 2,400 | 5 | 1,200 | 2 | 1,200 | | | | | | 18 | 2,700 |
| 89 | Wilkesbarre, Dallas and Harveys Lake | 1 | 2 | 600 | 2 | 600 | | | | | | | | 3 | 750 |
| 90 | Vallamont Traction[3] | | | | | | | | | | | | | | |
| 91 | South Side Passenger Railway[3] | | | | | | | | | | | | | | |
| 92 | Williamsport Passenger Railway[3] | | | | | | | | | | | | | | |
| 93 | East End Passenger Railway[3] | | | | | | | | | | | | | | |
| 94 | Red Lion and Windsor[3] | 1 | | | | | | | | | | | | | |
| 95 | Yardley, Morrisville and Trenton[3] | | | | | | | | | | | | | | |
| 96 | York and Dover Electric[3] | | | | | | | | | | | | | | |
| 97 | York and Dallastown Electric[3] | | | | | | | | | | | | | | |
| 98 | York Street Railway[3] | | | | | | | | | | | | | | |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] Power rented.
[4] Owned, but not operated.
[5] For 1 month only.
[6] For 10 months only.

PLANTS, BY COMPANIES: 1902—Continued.

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[2] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| | | | | | | | | | | | | | | | | No. | 7 |
| | | | | | | | | | | | | | | | | No. | 8 |
| 2 | 533 | 2 | 533 | | | | | 2 | 533 | See p. 400. | See p. 402. | 801,175 | 2,195 | 1,068,233 | 2,927 | No. | 9 |
| | | | | | | | | | | | | | | | | No. | 10 |
| [4]1 | 250 | 1 | 250 | | | | | | | | | | | | | No. | 11 |
| | | | | | | | | | | | | | | | | No. | 12 |
| 3 | 775 | 3 | 775 | | | | | | | | | 993,165 | 2,721 | 1,324,220 | 3,628 | Yes. | 13 |
| 6 | 2,491 | 4 | 825 | 1 | 600 | 1 | 1,066 | | | See p. 400. | | 5,183,730 | 14,202 | 6,911,640 | 17,936 | No. | 14 |
| 2 | 300 | 2 | 300 | | | | | | | | | 1,927,200 | 5,280 | 2,569,600 | 7,040 | No. | 15 |
| | | | | | | | | | | | | | | | | No. | 16 |
| | | | | | | | | | | | | | | | | No. | 17 |
| 1 | 400 | 1 | 400 | | | | | 2 | 250 | | See p. 402. | 1,418,025 | 3,885 | 1,890,700 | 5,180 | Yes. | 18 |
| 1 | 133 | 1 | 133 | | | | | | | | | [5]36,000 | 1,125 | [5]48,000 | 1,500 | No. | 19 |
| 2 | 380 | 2 | 380 | | | | | | | | | 394,200 | 1,080 | 525,600 | 1,440 | No. | 20 |
| | | | | | | | | | | | | | | | | No. | 21 |
| 2 | 800 | 2 | 800 | | | | | | | | | 542,025 | 1,485 | 722,700 | 1,980 | Yes. | 22 |
| 8 | 800 | 8 | 800 | | | | | | | | | 2,737,500 | 7,500 | 3,650,000 | 10,000 | No. | 23 |
| 2 | 1,200 | | | 2 | 1,200 | | | | | | | 919,800 | 2,520 | 1,226,400 | 3,360 | No. | 24 |
| 2 | 335 | 2 | 335 | | | | | | | | | [6]202,400 | 670 | [6]270,000 | 892 | No. | 25 |
| | | | | | | | | | | | | | | | | No. | 26 |
| [4]2 | 300 | 2 | 300 | | | | | | | | | | | | | No. | 27 |
| | | | | | | | | | | | | | | | | No. | 28 |
| 4 | 860 | 4 | 860 | | | | | | | | | 985,500 | 2,700 | 1,314,000 | 3,600 | Yes. | 29 |
| 7 | 1,702 | 7 | 1,702 | | | | | | | See p. 400. | See p. 402. | 4,380,000 | 12,000 | 5,840,000 | 16,000 | Yes. | 30 |
| | | | | | | | | | | | | | | | | No. | 31 |
| | | | | | | | | | | | | | | | | No. | 32 |
| 2 | 1,334 | | | 2 | 1,334 | | | | | | | 3,321,500 | 9,100 | 4,428,667 | 12,133 | No. | 33 |
| | | | | | | | | | | | | | | | | No. | 34 |
| 9 | 1,320 | 9 | 1,320 | | | | | 1 | 400 | See p. 400. | See p. 402. | 4,380,000 | 12,000 | 5,840,000 | 16,000 | No. | 35 |
| [4]2 | 734 | 2 | 734 | | | | | | | | | | | | | No. | 36 |
| 2 | 400 | 2 | 400 | | | | | | | | | 234,330 | 642 | 312,440 | 856 | No. | 37 |
| 2 | 200 | 2 | 200 | | | | | | | | | 165,710 | 454 | 220,825 | 605 | No. | 38 |
| 2 | 300 | 2 | 300 | | | | | | | | | 219,000 | 600 | 292,000 | 800 | No. | 39 |
| | | | | | | | | | | | | | | | | No. | 40 |
| 4 | 1,200 | 4 | 1,200 | | | | | | | | | 2,920,000 | 8,000 | 3,893,455 | 10,667 | No. | 41 |
| 3 | 450 | 3 | 450 | | | | | | | | | 1,643,595 | 4,503 | 2,191,460 | 6,004 | No. | 42 |
| | | | | | | | | | | | | | | | | | |
| 2 | 300 | 2 | 300 | | | | | | | See p. 400. | | 370,735 | 1,015 | 496,765 | 1,361 | No. | 43 |
| [4]1 | 180 | 1 | 180 | | | | | | | | | | | | | No. | 44 |
| | | | | | | | | | | | | | | | | No. | 45 |
| | | | | | | | | | | | | | | | | No. | 46 |
| 3 | 660 | 3 | 660 | | | | | | | | | [7]411,000 | 3,000 | [7]548,000 | 4,020 | No. | 47 |
| 5 | 2,200 | 4 | 1,125 | | | 1 | 1,075 | | | See p. 400. | | 4,019,015 | 11,011 | 5,358,687 | 14,681 | Yes. | 48 |
| 2 | 600 | 2 | 600 | | | | | | | | | [8]192,421 | 1,718 | [8]256,561 | 2,291 | No. | 49 |
| 2 | 267 | 2 | 267 | | | | | | | See p. 400. | | 327,992 | 899 | 427,323 | 1,199 | No. | 50 |
| 2 | 470 | 2 | 470 | | | | | | | | | 694,960 | 1,904 | 926,613 | 2,538 | No. | 51 |
| | | | | | | | | | | | | | | | | No. | 52 |
| 40 | 42,370 | 9 | 2,550 | 10 | 5,920 | 21 | 33,900 | | | See p. 400. | See p. 402. | 104,222,363 | 285,540 | 139,657,966 | 382,623 | No. | 53 |
| 2 | 500 | 2 | 500 | | | | | | | | | 1,095,000 | 3,000 | 1,460,000 | 4,000 | Yes. | 54 |
| 2 | 400 | 2 | 400 | | | | | | | | | | | | | No. | 55 |
| 2 | 1,200 | | | 2 | 1,200 | | | | | | See p. 402. | | | | | No. | 56 |
| 4 | 1,050 | 4 | 1,050 | | | | | | | | | 1,321,300 | 3,620 | 1,761,733 | 4,820 | No. | 57 |
| 3 | 2,010 | | | 3 | 2,010 | | | | | See p. 400. | | 1,216,910 | 3,334 | 1,629,725 | 4,465 | Yes. | 58 |
| 2 | 670 | 2 | 670 | | | | | | | See p. 400. | | 1,096,000 | 3,000 | 1,460,000 | 4,000 | No. | 59 |
| | | | | | | | | | | | | | | | | No. | 60 |
| 42 | 28,000 | 14 | 4,700 | 28 | 23,300 | | | 5 | 5,000 | See p. 400. | See p. 402. | 79,825,095 | 218,698 | 106,965,627 | 293,055 | No. | 61 |
| | | | | | | | | | | | | | | | | No. | 62 |
| | | | | | | | | | | | | | | | | No. | 63 |
| | | | | | | | | | | | | | | | | No. | 64 |
| | | | | | | | | | | | | | | | | No. | 65 |
| | | | | | | | | | | | | | | | | No. | 66 |
| | | | | | | | | | | | | | | | | No. | 67 |
| 8 | 1,220 | 8 | 1,220 | | | | | | | See p. 400. | | 2,228,325 | 6,105 | 2,971,100 | 8,140 | No. | 68 |
| | | | | | | | | | | | | | | | | No. | 69 |
| 2 | 280 | 2 | 280 | | | | | | | | | 776,500 | 2,100 | 1,022,000 | 2,800 | No. | 70 |
| 3 | 1,600 | | | 3 | 1,600 | | | | | | | 2,890,800 | 7,920 | 3,854,400 | 10,560 | No. | 71 |
| 2 | 267 | 2 | 267 | | | | | | | | | 1,314,000 | 3,600 | 1,752,000 | 4,800 | No. | 72 |
| 7 | 2,765 | 4 | 665 | 2 | 1,100 | 1 | 1,000 | | | See p. 400. | | 4,536,397 | 12,429 | 6,083,820 | 16,668 | No. | 73 |
| | | | | | | | | | | | | | | | | No. | 74 |
| | | | | | | | | | | | | | | | | No. | 75 |
| | | | | | | | | | | | | | | | | No. | 76 |
| 11 | 3,527 | 9 | 1,377 | 1 | 750 | 1 | 1,400 | | | See p. 400. | | 6,428,955 | 17,633 | 8,617,902 | 23,637 | No. | 77 |
| 3 | 800 | 3 | 800 | | | | | | | See p. 400. | | 2,315,925 | 6,345 | 3,087,900 | 8,460 | No. | 78 |
| | | | | | | | | | | | | | | | | No. | 79 |
| [4]1 | 147 | 1 | 147 | | | | | | | | | | | | | No. | 80 |
| 2 | 200 | 2 | 200 | | | | | | | | | 292,000 | 800 | 389,333 | 1,066 | No. | 81 |
| 2 | 600 | 2 | 600 | | | | | | | | | 1,445,400 | 3,960 | 1,927,200 | 5,280 | No. | 82 |
| 2 | 207 | 2 | 207 | | | | | | | | | 300,000 | 822 | 400,000 | 1,099 | No. | 83 |
| 2 | 650 | 2 | 650 | | | | | | | See p. 400. | | 282,364 | 773 | 376,485 | 1,028 | No. | 84 |
| 2 | 200 | 2 | 200 | | | | | | | | | 949,000 | 2,600 | 1,265,333 | 3,467 | No. | 85 |
| | | | | | | | | [4]3 | 260 | | | | | | | No. | 86 |
| [4]2 | 160 | 2 | 160 | | | | | | | | | | | | | No. | 87 |
| 6 | 2,200 | 4 | 1,100 | 2 | 1,100 | | | | | See p. 400. | | 5,024,286 | 13,765 | 6,699,048 | 18,353 | No. | 88 |
| 2 | 520 | 2 | 520 | | | | | | | See p. 400. | See p. 402. | 301,125 | 825 | 401,500 | 1,100 | No. | 89 |
| | | | | | | | | | | | | | | | | No. | 90 |
| | | | | | | | | | | | | | | | | No. | 91 |
| | | | | | | | | | | | | | | | | No. | 92 |
| | | | | | | | | | | | | | | | | No. | 93 |
| | | | | | | | | | | See p. 400. | | | | | | No. | 94 |
| [4]1 | 100 | 1 | 100 | | | | | | | | | | | | | No. | 95 |
| | | | | | | | | | | | | | | | | No. | 96 |
| | | | | | | | | | | | | | | | | No. | 97 |
| | | | | | | | | | | | | | | | | No. | 98 |

[7] For 4½ months only.
[8] For 3½ months only.
[9] Gas engines.
[10] Steam rented.

TABLE 96.—POWER AND GENERATING

| Number. | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. | | | | | | | | WATER-POWER.[1] | AUXILIARY STEAM ENGINES. | | BOILERS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | |
| | | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | H. P. | No. | H. P. | No. | H. P. |
| | RHODE ISLAND. | | | | | | | | | | | | | | |
| | Total for state | 9 | 22 | 13,135 | 10 | 2,285 | 7 | 4,650 | 5 | 6,200 | | | | 44 | 8,430 |
| 1 | Sea View Railroad | 2 | 4 | 635 | 4 | 635 | | | | | | | | 4 | 650 |
| 2 | Pawtucket Street Railway[4] | | | | | | | | | | | | | | |
| 3 | Union Railroad | 1 | 6 | 6,450 | | | 3 | 2,250 | 3 | 4,200 | | | | 12 | 3,000 |
| 4 | Rhode Island Suburban | 3 | 6 | 2,900 | 2 | 500 | 4 | 2,400 | | | | | | 9 | 2,175 |
| 5 | Providence and Danielson | 1 | 3 | 800 | 3 | 800 | | | | | | | | 6 | 865 |
| 6 | New York, New Haven and Hartford | 1 | 2 | 2,000 | | | | | 2 | 2,000 | | | | 10 | 1,500 |
| 7 | Pawcatuck Valley Railway | 1 | 1 | 350 | 1 | 350 | | | | | | | | 3 | 240 |
| 8 | Woonsocket Street Railway[4] | | | | | | | | | | | | | | |
| | SOUTH CAROLINA. | | | | | | | | | | | | | | |
| | Total for state | 3 | 14 | 5,875 | 11 | 3,525 | 3 | 2,350 | | | | | | 12 | 4,050 |
| 1 | North Augusta Electric and Improvement. | | | | | | | | | | | | | | |
| 2 | Charleston Railway, Gas and Electric | 2 | 10 | 5,100 | 7 | 2,750 | 3 | 2,350 | | | | | | 10 | 3,650 |
| 3 | Columbia Railway, Light and Power[4] | | | | | | | | | | | | | | |
| 4 | Greenville Traction[4] | | | | | | | | | | | | | | |
| 5 | Orangeburg City Street Railway | | | | | | | | | | | | | | |
| 6 | Rock Hill Water, Light and Railway | | | | | | | | | | | | | | |
| 7 | Spartanburg Railway, Gas and Electric | 1 | 4 | 775 | 4 | 775 | | | | | | | | 2 | 400 |
| | SOUTH DAKOTA. | | | | | | | | | | | | | | |
| | Total for state | | | | | | | | | | | | | | |
| 1 | Rapid City Street Railway[7] | | | | | | | | | | | | | | |
| | TENNESSEE. | | | | | | | | | | | | | | |
| | Total for state | 6 | 21 | 11,172 | 12 | 2,972 | 6 | 3,800 | 3 | 4,400 | | 7 | 310 | 30 | 7,900 |
| 1 | Bristol Belt Line[4] | | | | | | | | | | | | | | |
| 2 | Chattanooga Electric Railway | 1 | 5 | 910 | 5 | 910 | | | | | | | | 4 | 500 |
| 3 | Rapid Transit of Chattanooga | 1 | 3 | 1,750 | 2 | 950 | 1 | 800 | | | | | | 5 | 1,200 |
| 4 | Electric Railway, of Clarksville | 1 | 2 | 300 | 2 | 300 | | | | | | | | 2 | 200 |
| 5 | Jackson and Suburban | 1 | 2 | 312 | 2 | 312 | | | | | | | | 4 | 400 |
| 6 | Knoxville Traction | 1 | 5 | 3,000 | | | 5 | 3,000 | | | | | | 8 | 2,800 |
| 7 | Memphis Street Railway | 1 | 4 | 4,900 | 1 | 500 | | | 3 | 4,400 | | 7 | 310 | 7 | 2,800 |
| 8 | Nashville Railway[4] | | | | | | | | | | | | | | |
| | TEXAS. | | | | | | | | | | | | | | |
| | Total for state | 9 | 22 | 7,115 | 19 | 4,565 | 1 | 550 | 2 | 2,000 | | 8 | 265 | 27 | 5,800 |
| 1 | Austin Electric Railway | 1 | 2 | 500 | 2 | 500 | | | | | | | | 2 | 350 |
| 2 | Bonham Electric Railway, Light and Power.[4] | | | | | | | | | | | | | | |
| 3 | Dallas Consolidated[4] | | | | | | | | | | | | | | |
| 4 | Rapid Transit[4] | | | | | | | | | | | | | | |
| 5 | Denison and Sherman | 1 | 2 | 600 | 2 | 600 | | | | | | | | 2 | 500 |
| 6 | El Paso Electric Railway[4] | | | | | | | | | | | | | | |
| 7 | Northern Texas Traction | 2 | 3 | 2,350 | 1 | 350 | | | 2 | 2,000 | | 3 | 180 | 6 | 1,800 |
| 8 | Galveston Street Railway | 1 | 6 | 1,600 | 6 | 1,600 | | | | | | 5 | 85 | 3 | 750 |
| 9 | Houston Electric | 1 | 2 | 540 | 2 | 540 | | | | | | | | 3 | 500 |
| 10 | Laredo Electric and Railway | 1 | 1 | 50 | 1 | 50 | | | | | | | | 1 | 200 |
| 11 | Longview and Junction | | | | | | | | | | | | | | |
| 12 | Paris Transit[4] | | | | | | | | | | | | | | |
| 13 | San Antonio Traction | 1 | 3 | 850 | 2 | 300 | 1 | 550 | | | | | | 6 | 1,000 |
| 14 | Seguin Street Railway | | | | | | | | | | | | | | |
| 15 | Citizens Railway | 1 | 3 | 625 | 3 | 625 | | | | | | | | 4 | 700 |
| 16 | Waxahachie Street Railway | | | | | | | | | | | | | | |
| 17 | Lake Park Street Railroad | | | | | | | | | | | | | | |
| | UTAH. | | | | | | | | | | | | | | |
| | Total for state | 1 | 4 | 900 | 4 | 900 | | | | | | | | 8 | 950 |
| 1 | Ogden Rapid Transit | 1 | 1 | 400 | 1 | 400 | | | | | | | | 3 | 450 |
| 2 | Consolidated Railway and Power[4] | | [11] 3 | 500 | 3 | 500 | | | | | | | | [11] 5 | 500 |
| 3 | Salt Lake and Utah Valley[4] | | | | | | | | | | | | | | |
| | VERMONT. | | | | | | | | | | | | | | |
| | Total for state | 3 | 5 | 1,011 | 5 | 1,011 | | | | | 140 | | | 6 | 900 |
| 1 | Barre and Montpelier[4] | | | | | | | | | | | | | | |
| 2 | Bellows Falls and Saxtons River[4] | | | | | | | | | | | | | | |
| 3 | Brattleboro Street Railway | 1 | 2 | 275 | 2 | 275 | | | | | 140 | | | 2 | 200 |
| 4 | Burlington Traction[4] | | | | | | | | | | | | | | |
| 5 | Rutland Street Railway[4] | | | | | | | | | | | | | | |
| 6 | St. Albans Street Railway | 1 | 1 | 286 | 1 | 286 | | | | | | | | 2 | 400 |
| 7 | Springfield Electric Railway[4] | | | | | | | | | | | | | | |
| 8 | Mt. Mansfield Electric Railway | 1 | 2 | 450 | 2 | 450 | | | | | | | | 2 | 300 |
| 9 | Military Post Railway[4] | | | | | | | | | | | | | | |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] For 6 companies only, and includes 1 company operating part of year.
[4] Power rented.
[5] For 6 months only.
[6] For 2 companies only.

PLANTS, BY COMPANIES: 1902—Continued.

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[8] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | | | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| 29 | 12,044 | 18 | 2,414 | 7 | 4,741 | 4 | 4,889 | ..... | ..... | See p. 400..... | See p. 408..... | [3] 35,576,992 | 97,591 | [3] 47,460,356 | 130,189 | ..... | |
| 6 | 579 | 6 | 579 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | See p. 403..... | 766,500 | 2,100 | 1,022,000 | 2,800 | Yes... | 1 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 2 |
| 6 | 5,750 | ..... | ..... | 3 | 2,000 | 3 | 3,750 | ..... | ..... | See p. 400..... | See p. 403..... | 22,269,745 | 61,013 | 29,692,993 | 81,351 | Yes... | 3 |
| 8 | 1,901 | 7 | 1,035 | 1 | 866 | ..... | ..... | ..... | ..... | ..... | See p. 403..... | 8,074,165 | 22,121 | 10,765,553 | 29,495 | Yes... | 4 |
| 3 | 935 | 2 | 400 | 1 | 535 | ..... | ..... | ..... | ..... | ..... | See p. 403..... | 1,007,765 | 2,761 | 1,343,665 | 3,681 | No.... | 5 |
| 3 | 2,479 | ..... | ..... | 2 | 1,340 | 1 | 1,139 | ..... | ..... | See p. 400..... | ..... | 3,411,317 | 9,346 | 4,572,811 | 12,528 | No.... | 6 |
| 3 | 400 | 3 | 400 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [5] 47,500 | 250 | [5] 63,334 | 334 | No.... | 7 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 8 |
| 8 | 2,817 | 7 | 2,117 | 1 | 700 | ..... | ..... | 8 | 1,590 | See p. 400..... | See p. 403..... | [6] 5,652,469 | 15,483 | [6] 7,537,112 | 20,645 | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 1 |
| 6 | 2,467 | 5 | 1,767 | 1 | 700 | ..... | ..... | 6 | 1,270 | See p. 400..... | ..... | 4,668,429 | 12,787 | 6,224,572 | 17,049 | Yes... | 2 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | See p. 403..... | ..... | ..... | ..... | ..... | No.... | 3 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 4 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 5 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 6 |
| 2 | 350 | 2 | 350 | ..... | ..... | ..... | ..... | 2 | 320 | ..... | ..... | 984,040 | 2,696 | 1,312,540 | 3,596 | Yes... | 7 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 32 | 8,663 | 28 | 4,263 | 1 | 800 | 3 | 3,600 | 3 | 1,183 | See p. 400..... | ..... | [8] 12,570,235 | 34,439 | [8] 16,821,390 | 46,086 | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 1 |
| 7 | 900 | 7 | 900 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2,117,000 | 5,800 | 2,883,500 | 7,900 | No.... | 2 |
| 3 | 1,750 | 2 | 950 | 1 | 800 | ..... | ..... | ..... | ..... | See p. 400..... | ..... | 2,365,200 | 6,480 | 3,153,600 | 8,640 | No.... | 3 |
| 2 | 150 | 2 | 150 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 136,510 | 374 | 182,135 | 499 | No.... | 4 |
| 2 | 163 | 2 | 163 | ..... | ..... | ..... | ..... | 1 | 117 | ..... | ..... | 1,095,000 | 3,000 | 1,460,000 | 4,000 | Yes... | 5 |
| 14 | 1,700 | 14 | 1,700 | ..... | ..... | ..... | ..... | 2 | 1,066 | ..... | ..... | 2,980,225 | 8,165 | 3,973,755 | 10,887 | Yes... | 6 |
| 4 | 4,000 | 1 | 400 | ..... | ..... | 3 | 3,600 | ..... | ..... | See p. 400..... | ..... | 3,876,300 | 10,620 | 5,168,400 | 14,160 | No.... | 7 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 8 |
| 27 | 4,904 | 26 | 4,337 | 1 | 567 | ..... | ..... | 4 | 2,173 | See p. 400..... | See p. 408..... | [9] 10,575,319 | 30,983 | [9] 14,107,849 | 41,330 | ..... | |
| 3 | 500 | 3 | 500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1,120,000 | 3,068 | 1,500,880 | 4,112 | No.... | 1 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 2 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 3 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 4 |
| 2 | 500 | 2 | 500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 511,000 | 1,400 | 681,333 | 1,866 | No.... | 5 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 6 |
| 4 | 650 | 4 | 650 | ..... | ..... | ..... | ..... | 2 | 1,740 | See p. 400..... | See p. 408..... | 1,460,000 | 4,000 | 1,946,545 | 5,333 | Yes... | 7 |
| 2 | 870 | 2 | 870 | ..... | ..... | ..... | ..... | 2 | 433 | ..... | ..... | [10] 324,800 | 2,900 | [10] 433,066 | 3,866 | Yes... | 8 |
| 5 | 640 | 5 | 640 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2,328,590 | 6,366 | 3,098,120 | 8,488 | No.... | 9 |
| 2 | 150 | 2 | 150 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 157,680 | 432 | 210,240 | 576 | Yes... | 10 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 11 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | ..... | ..... | ..... | ..... | ..... | No.... | 12 |
| 5 | 1,047 | 4 | 480 | 1 | 567 | ..... | ..... | ..... | ..... | ..... | ..... | 3,790,204 | 10,384 | 5,053,605 | 13,845 | No.... | 13 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 14 |
| 4 | 547 | 4 | 547 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 888,045 | 2,433 | 1,184,060 | 3,244 | Yes... | 15 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 16 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 17 |
| 10 | 1,030 | 10 | 1,030 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 556,625 | 1,525 | 742,166 | 2,033 | ..... | |
| 3 | 260 | 3 | 260 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 556,625 | 1,525 | 742,166 | 2,033 | Yes... | 1 |
| [11] 7 | 770 | 7 | 770 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 2 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 3 |
| 10 | 2,173 | 10 | 2,173 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | See p. 408..... | [12] 1,804,195 | 4,943 | [12] 2,405,350 | 6,590 | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | See p. 408..... | ..... | ..... | ..... | ..... | No.... | 1 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 408..... | ..... | ..... | ..... | ..... | No.... | 2 |
| 2 | 347 | 2 | 347 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 365,000 | 1,000 | 486,545 | 1,333 | No.... | 3 |
| [11] 1 | 333 | 1 | 333 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 4 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 5 |
| 1 | 280 | 1 | 280 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | ..... | 542,025 | 1,485 | 722,700 | 1,980 | No.... | 6 |
| [11] 2 | 600 | 2 | 600 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 7 |
| 2 | 400 | 2 | 400 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 897,170 | 2,458 | 1,196,105 | 3,277 | No.... | 8 |
| [11] 2 | 218 | 2 | 213 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 9 |

[7] This company failed to make a report.
[8] For 6 companies only.
[9] For 8 companies only, and includes 1 company operating part of year.
[10] For 4 months only; power rented during remainder of year.
[11] Owned but not operated.
[12] For 3 companies only.

TABLE 96.—POWER AND GENERATING

| Number. | STATE AND NAME OF COMPANY. | Power houses, number. | STEAM ENGINES. Total. No. | Total. H. P. | 500 H. P. or under. No. | 500 H. P. or under. H. P. | Over 500 H. P. and under 1,000 H. P. No. | Over 500 H. P. and under 1,000 H. P. H. P. | 1,000 H. P. and over. No. | 1,000 H. P. and over. H. P. | WATER-POWER.[1] H. P. | AUXILIARY STEAM ENGINES. No. | AUXILIARY STEAM ENGINES. H. P. | BOILERS. No. | BOILERS. H. P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | VIRGINIA. | | | | | | | | | | | | | | |
| | Total for state | 16 | 51 | 15,820 | 45 | 10,245 | 3 | 2,250 | 3 | 3,325 | 950 | 2 | 40 | 51 | 9,880 |
| 1 | Charlottesville City and Suburban | 1 | 3 | 450 | 3 | 450 | | | | | | | | 2 | 300 |
| 2 | Danville Railway and Electric | 1 | 2 | 450 | 2 | 450 | | | | | | | | 2 | 400 |
| 3 | Washington, Arlington, and Falls Church.[4] | | | | | | | | | | | | | | |
| 4 | Lynchburg Traction and Light | 2 | 5 | 1,275 | 5 | 1,275 | | | | | 350 | | | 4 | 1,000 |
| 5 | Citizens Railway, Light and Power[4] | 1 | [5]4 | 400 | 4 | 400 | | | | | | | | [5]3 | 550 |
| 6 | Newport News and Old Point Railway and Electric. | 1 | 6 | 3,475 | 4 | 1,600 | 1 | 750 | 1 | 1,125 | | | | 6 | 1,500 |
| 7 | Bay Shore Terminal | 1 | 1 | 300 | 1 | 300 | | | | | | | | 4 | 300 |
| 8 | Norfolk and Atlantic Terminal | 1 | 2 | 600 | 2 | 600 | | | | | | | | 4 | 600 |
| 9 | Berkley Street Railway | 1 | 2 | 300 | 2 | 300 | | | | | | | | [7] | |
| 10 | Norfolk Railway and Light | 1 | 9 | 4,300 | 7 | 2,100 | | | 2 | 2,200 | | | | 9 | 2,500 |
| 11 | Southside Railway and Development[9] | | | | | | | | | | | | | | |
| 12 | Richmond and Petersburg Electric[4] | | | | | | | | | | | | | | |
| 13 | Old Dominion Railway | 1 | 2 | 300 | 2 | 300 | | | | | | | | 2 | 200 |
| 14 | Norfolk, Portsmouth and Newport News. | 1 | 4 | 900 | 4 | 900 | | | | | | | | 4 | 550 |
| 15 | Radford Water Power | 1 | | | | | | | | | 600 | | | | |
| 16 | Richmond Traction[9] | | | | | | | | | | | | | | |
| 17 | Richmond Passenger and Power[9] | | | | | | | | | | | | | | |
| 18 | Virginia Passenger and Power[9] | | | | | | | | | | | | | | |
| 19 | Roanoke Railway and Electric | 1 | 7 | 1,350 | 7 | 1,350 | | | | | | 2 | 40 | 3 | 900 |
| 20 | Tazewell Street Railway | | | | | | | | | | | | | | |
| 21 | Washington, Alexandria and Mt. Vernon | 2 | 4 | 1,720 | 2 | 220 | 2 | 1,500 | | | | | | 8 | 1,080 |
| | WASHINGTON. | | | | | | | | | | | | | | |
| | Total for state | 9 | 34 | 13,132 | 26 | 6,182 | 5 | 3,450 | 3 | 3,500 | 1,325 | 3 | 35 | 66 | 10,855 |
| 1 | Everett Railway and Electric | 1 | 2 | 1,500 | | | 2 | 1,500 | | | | 3 | 35 | 3 | 960 |
| 2 | Olympia Light and Power | 1 | | | | | | | | | 1,325 | | | | |
| 3 | Seattle Electric | 4 | 20 | 5,382 | 19 | 4,782 | 1 | 600 | | | | | | 41 | 4,855 |
| 4 | Seattle and Renton[4] | | | | | | | | | | | | | | |
| 5 | Washington Water Power[4] | | | | | | | | | | | | | | |
| 6 | Spokane and Montrose Motor[4] | | | | | | | | | | | | | | |
| 7 | Tacoma Railway and Power | 2 | 7 | 5,200 | 3 | 950 | 1 | 750 | 3 | 3,500 | | | | 16 | 4,040 |
| 8 | Northern Railway and Improvement | 1 | 5 | 1,050 | 4 | 450 | 1 | 600 | | | | | | 6 | 1,000 |
| | WEST VIRGINIA. | | | | | | | | | | | | | | |
| | Total for state | 9 | 34 | 12,050 | 26 | 5,500 | 5 | 3,350 | 3 | 3,200 | | | | 45 | 8,300 |
| 1 | Kanawha Valley Traction[4] | | | | | | | | | | | | | | |
| 2 | East Liverpool and Rock Springs[4] | | | | | | | | | | | | | | |
| 3 | Fairmont and Clarksburg | 2 | 7 | 1,900 | 6 | 1,100 | 1 | 800 | | | | | | 13 | 1,600 |
| 4 | Camden Interstate Railway | 1 | 3 | 1,800 | | | 3 | 1,800 | | | | | | 4 | 1,550 |
| 5 | Parkersburg, Marietta and Interurban | 2 | 12 | 3,000 | 12 | 3,000 | | | | | | | | 17 | 2,300 |
| 6 | Wheeling and Wellsburg | 1 | 2 | 200 | 2 | 200 | | | | | | | | 1 | 100 |
| 7 | Wheeling Traction | 2 | 6 | 3,750 | 3 | 550 | | | 3 | 3,200 | | | | 7 | 1,950 |
| 8 | Wheeling and Elm Grove | 1 | 4 | 1,400 | 3 | 650 | 1 | 750 | | | | | | 3 | 800 |
| | WISCONSIN. | | | | | | | | | | | | | | |
| | Total for state | 21 | 71 | 36,530 | 48 | 11,680 | 12 | 7,650 | 11 | 17,200 | 3,885 | | | 93 | 24,616 |
| 1 | Wisconsin Traction, Lt., Heat and Power | 1 | 2 | 2,000 | | | | | 2 | 2,000 | 3,200 | | | 6 | 2,000 |
| 2 | Ashland Light, Power and Street Railway | 1 | 4 | 500 | 4 | 500 | | | | | | | | 4 | 500 |
| 3 | Chippewa Valley Electric Railroad | 2 | 1 | 300 | 1 | 300 | | | | | | | | 1 | 300 |
| 4 | Fond du Lac Street Railway and Light | 1 | 5 | 1,100 | 5 | 1,100 | | | | | | | | 5 | 900 |
| 5 | Fox River Electric Railway and Power | 1 | 3 | 450 | 3 | 450 | | | | | | | | 2 | 596 |
| 6 | Janesville Street Railway | 1 | 1 | 100 | 1 | 100 | | | | | | | | 2 | 170 |
| 7 | La Crosse City Railway | 1 | 2 | 650 | 2 | 650 | | | | | | | | 3 | 400 |
| 8 | La Crosse and Onalaska[4] | | | | | | | | | | | | | | |
| 9 | Madison Traction[4] | | | | | | | | | | | | | | |
| 10 | Manitowoc and Northern | 1 | 1 | 300 | 1 | 300 | | | | | | | | 2 | 300 |
| 11 | Marinette Gas, Electric Light and Street Railway. | 1 | 3 | 700 | 3 | 700 | | | | | | | | 4 | 350 |
| 12 | Merrill Railway and Lighting | 1 | 1 | 200 | 1 | 200 | | | | | 475 | | | 4 | 550 |
| 13 | Milwaukee Electric Railway and Light | 4 | 31 | 22,840 | 15 | 3,590 | 7 | 4,050 | 9 | 15,200 | | | | 40 | 13,400 |
| 14 | Milwaukee Light, Heat and Traction | 3 | 10 | 3,325 | 9 | 2,725 | 1 | 600 | | | | | | 10 | 2,050 |
| 15 | Winnebago Traction | 1 | 3 | 2,250 | | | 3 | 2,250 | | | | | | 3 | 2,100 |
| 16 | Sheboygan Light, Power and Railway | 1 | 3 | 1,650 | 2 | 900 | 1 | 750 | | | | | | 5 | 800 |
| 17 | Waupaca Electric Light and Railway | 1 | 1 | 165 | 1 | 165 | | | | | 210 | | | 2 | 200 |
| | HAWAII. | | | | | | | | | | | | | | |
| | Total for territory | 2 | 4 | 1,120 | 4 | 1,120 | | | | | | 1 | 60 | 4 | 930 |
| 1 | Hawaiian Tramways | | | | | | | | | | | | | | |
| 2 | Honolulu Rapid Transit and Land | 1 | 3 | 1,020 | 3 | 1,020 | | | | | | 1 | 60 | 3 | 780 |
| 3 | Pacific Heights Electric Railway[4] | 1 | [10]1 | 100 | [10]1 | 100 | | | | | | | | [10]1 | 150 |
| | PORTO RICO. | | | | | | | | | | | | | | |
| | Total | 1 | 4 | 700 | 4 | 700 | | | | | | | | 3 | 725 |
| 1 | Tramway Stock | | | | | | | | | | | | | | |
| 2 | San Juan Light and Transit | 1 | 4 | 700 | 4 | 700 | | | | | | | | 3 | 725 |

[1] For details see Supplementary Table 3.
[2] For details see Supplementary Table 4.
[3] For 13 companies only, and includes 2 companies operating part of year.
[4] Power rented.
[5] Used for lighting purposes only.
[6] For 1½ months only.
[7] Steam rented.
[8] For 3 months.

PLANTS, BY COMPANIES: 1902—Continued.

| DIRECT-CURRENT DYNAMOS. | | | | | | | | ALTERNATING-CURRENT DYNAMOS.[8] | | Auxiliary equipment, transformers, storage batteries, rotaries, etc. | Substations and their equipment. | OUTPUT OF STATIONS. | | | | Generate electric current for sale. | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and over. | | No. | H. P. | | | Kilowatt hours. | | Horsepower hours of current. | | | |
| No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | | | | | Total for year. | Average per day. | Total for year. | Average per day. | | |
| 59 | 12,934 | 54 | 8,567 | 3 | 2,167 | 2 | 2,200 | 17 | 3,555 | See p. 400..... | See p. 403..... | [3] 18,833,300 | 53,567 | [3] 25,386,755 | 71,630 | ..... | |
| 5 | 550 | 5 | 550 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | ..... | 328,500 | 900 | 438,000 | 1,200 | Yes... | 1 |
| 5 | 680 | 5 | 680 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 735,183 | 2,014 | 985,500 | 2,700 | Yes... | 2 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 3 |
| 4 | 875 | 4 | 875 | ..... | ..... | ..... | ..... | 5 | 775 | ..... | ..... | 2,826,925 | 7,745 | 3,769,233 | 10,327 | Yes... | 4 |
| [5] 2 | 200 | 2 | 200 | ..... | ..... | ..... | ..... | [5] 1 | 50 | ..... | See p. 403..... | ..... | ..... | ..... | ..... | Yes... | 5 |
| 2 | 1,100 | 1 | 433 | 1 | 667 | ..... | ..... | 5 | 1,900 | See p. 400..... | ..... | 1,722,528 | 4,719 | 2,496,671 | 6,292 | Yes... | 6 |
| 1 | 267 | 1 | 267 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [6] 46,800 | 1,200 | [6] 62,400 | 1,600 | No.... | 7 |
| 2 | 606 | 2 | 600 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 848,625 | 2,325 | 1,137,567 | 3,116 | No.... | 8 |
| 2 | 300 | 2 | 300 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [8] 110,400 | 1,200 | [8] 147,200 | 1,600 | No.... | 9 |
| 13 | 4,300 | 11 | 2,100 | ..... | ..... | 2 | 2,200 | 3 | 500 | See p. 400..... | ..... | 6,737,279 | 18,458 | 9,026,450 | 24,730 | Yes... | 10 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 11 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | ..... | ..... | ..... | ..... | ..... | No.... | 12 |
| 2 | 268 | 2 | 268 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 452,600 | 1,240 | 605,900 | 1,660 | No.... | 13 |
| 4 | 804 | 4 | 804 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 620,500 | 1,700 | 831,762 | 2,278 | No.... | 14 |
| 1 | 160 | 1 | 160 | ..... | ..... | ..... | ..... | 2 | 280 | See p. 400..... | ..... | 332,750 | 912 | 443,667 | 1,216 | Yes... | 15 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 16 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Yes... | 17 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | Yes... | 18 |
| 12 | 1,030 | 12 | 1,030 | ..... | ..... | ..... | ..... | 1 | 50 | ..... | ..... | 1,971,000 | 5,400 | 2,642,125 | 7,238 | Yes... | 19 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 20 |
| 4 | 1,800 | 2 | 300 | 2 | 1,500 | ..... | ..... | ..... | ..... | ..... | ..... | 2,100,210 | 5,754 | 2,800,280 | 7,673 | Yes... | 21 |
| 67 | 7,651 | 66 | 7,017 | 1 | 634 | ..... | ..... | 13 | 5,252 | See p. 400..... | See p. 403..... | [10] 20,649,562 | 56,574 | [10] 27,532,749 | 75,432 | ..... | |
| 1 | 634 | ..... | ..... | 1 | 634 | ..... | ..... | 1 | 634 | See p. 400..... | ..... | 472,959 | 1,296 | 630,612 | 1,728 | Yes... | 1 |
| 3 | 368 | 3 | 368 | ..... | ..... | ..... | ..... | 3 | 348 | See p. 400..... | ..... | 427,008 | 1,170 | 569,344 | 1,560 | Yes... | 2 |
| 51 | 4,068 | 51 | 4,068 | ..... | ..... | ..... | ..... | 5 | 660 | See p. 400..... | See p. 403..... | 10,200,000 | 27,945 | 13,600,000 | 37,260 | Yes... | 3 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 4 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 5 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 6 |
| 7 | 1,675 | 7 | 1,675 | ..... | ..... | ..... | ..... | 3 | 3,450 | See p. 400..... | ..... | 7,634,615 | 20,917 | 10,179,487 | 27,889 | Yes... | 7 |
| 5 | 906 | 5 | 906 | ..... | ..... | ..... | ..... | 1 | 160 | See p. 400..... | ..... | 1,914,980 | 5,246 | 2,553,306 | 6,995 | Yes... | 8 |
| 22 | 6,117 | 17 | 2,834 | 5 | 3,283 | ..... | ..... | 14 | 3,923 | See p. 400..... | See p. 403..... | [11] 11,744,895 | 32,178 | [11] 15,659,861 | 42,903 | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 1 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 2 |
| 5 | 1,058 | 4 | 525 | 1 | 533 | ..... | ..... | 4 | 653 | ..... | ..... | 1,204,500 | 3,300 | 1,606,000 | 4,400 | Yes... | 3 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 | 1,800 | See p. 400..... | See p. 403..... | 6,074,330 | 16,642 | 8,099,107 | 22,189 | Yes... | 4 |
| 7 | 1,093 | 7 | 1,093 | ..... | ..... | ..... | ..... | 5 | 1,260 | ..... | See p. 403..... | 2,179,050 | 5,970 | 2,905,400 | 7,960 | Yes... | 5 |
| 2 | 266 | 2 | 266 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 81,500 | 223 | 108,667 | 297 | No.... | 6 |
| 5 | 2,350 | 2 | 350 | 3 | 2,000 | ..... | ..... | ..... | ..... | ..... | ..... | [12] 2,206,515 | 6,043 | [12] 2,940,687 | 8,057 | No.... | 7 |
| 3 | 1,350 | 2 | 600 | 1 | 750 | ..... | ..... | 2 | 210 | ..... | ..... | ..... | ..... | ..... | ..... | Yes... | 8 |
| 121 | 23,483 | 112 | 15,633 | 6 | 3,650 | 3 | 4,200 | 30 | 14,696 | See p. 400..... | See p. 403..... | [13] 45,177,222 | 124,102 | [13] 60,236,054 | 165,469 | ..... | |
| 2 | 1,500 | ..... | ..... | 2 | 1,500 | ..... | ..... | 2 | 1,600 | ..... | ..... | [14] 1,013,970 | 2,778 | [14] 1,351,960 | 3,704 | Yes... | 1 |
| 5 | 260 | 5 | 260 | ..... | ..... | ..... | ..... | 3 | 320 | ..... | ..... | 985,500 | 2,700 | 1,314,000 | 3,600 | Yes... | 2 |
| 1 | 400 | 1 | 400 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | See p. 403..... | 1,865,880 | 5,112 | 2,487,840 | 6,816 | No.... | 3 |
| 8 | 795 | 8 | 795 | ..... | ..... | ..... | ..... | 3 | 350 | ..... | ..... | 864,721 | 2,369 | 1,152,670 | 3,158 | Yes... | 4 |
| 5 | 520 | 5 | 520 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 744,600 | 2,040 | 992,800 | 2,720 | Yes... | 5 |
| 1 | 120 | 1 | 120 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | ..... | 256,960 | 704 | 342,613 | 939 | No.... | 6 |
| 3 | 600 | 3 | 600 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 603,345 | 1,653 | 804,460 | 2,204 | Yes... | 7 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 8 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 9 |
| 1 | 500 | 1 | 500 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | [15] 245,000 | 1,000 | [15] 326,667 | 1,333 | Yes... | 10 |
| 6 | 240 | 6 | 240 | ..... | ..... | ..... | ..... | 3 | 350 | ..... | ..... | 1,028,570 | 2,818 | 1,371,427 | 3,757 | Yes... | 11 |
| 5 | 500 | 5 | 500 | ..... | ..... | ..... | ..... | ..... | ..... | See p. 400..... | ..... | 300,000 | 822 | 400,000 | 1,096 | Yes... | 12 |
| 59 | 13,750 | 52 | 7,400 | 4 | 2,150 | 3 | 4,200 | 10 | 10,720 | See p. 400..... | See p. 403..... | 31,526,259 | 86,373 | 42,035,012 | 115,164 | Yes... | 13 |
| 16 | 2,402 | 16 | 2,402 | ..... | ..... | ..... | ..... | 2 | 706 | ..... | See p. 403..... | 2,888,847 | 7,915 | 3,851,845 | 10,553 | Yes... | 14 |
| 2 | 600 | 2 | 600 | ..... | ..... | ..... | ..... | 1 | 300 | ..... | See p. 403..... | 1,331,885 | 3,649 | 1,775,847 | 4,866 | No.... | 15 |
| 5 | 1,044 | 5 | 1,044 | ..... | ..... | ..... | ..... | 5 | 250 | ..... | ..... | 1,226,400 | 3,360 | 1,635,200 | 4,480 | Yes... | 16 |
| 2 | 252 | 2 | 252 | ..... | ..... | ..... | ..... | 1 | 100 | ..... | ..... | 296,285 | 809 | 393,713 | 1,079 | Yes... | 17 |
| 4 | 500 | 4 | 500 | ..... | ..... | ..... | ..... | 1 | 75 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 1 |
| 3 | 400 | 3 | 400 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | (9) | ..... | (9) | ..... | Yes... | 2 |
| [16] 1 | 100 | [16] 1 | 100 | ..... | ..... | ..... | ..... | [16] 1 | 75 | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 3 |
| 2 | 600 | 2 | 600 | ..... | ..... | ..... | ..... | 2 | 600 | ..... | ..... | 1,044,995 | 2,863 | 1,393,205 | 3,817 | ..... | |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | No.... | 1 |
| 2 | 600 | 2 | 600 | ..... | ..... | ..... | ..... | 2 | 600 | ..... | ..... | 1,044,995 | 2,863 | 1,393,205 | 3,817 | Yes... | 2 |

[9] Not reported.
[10] For 5 companies only.
[11] For 5 companies only, and includes 1 company operating part of year.
[12] For 10 months only.
[13] For 15 companies only, and includes 2 companies operating part of year.
[14] For 9 months only.
[15] For 8 months only.
[16] Owned but not operated.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS,

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | UNITED STATES | 5,836,615,296 | [1]4,774,211,904 | 1,062,403,392 | 4,455 | 212,217 | 1,144,430,466 | 1,120,101,944 | 24,328,522 | 4.26 |
| | ALABAMA. | | | | | | | | | |
| | Total for state | 23,741,963 | 22,748,871 | 993,092 | 12 | 111,122 | 6,152,896 | 6,043,479 | 109,417 | 3.76 |
| 1 | Anniston Electric and Gas | 814,388 | 780,200 | 34,188 | 3 | 78,020 | 316,095 | 313,380 | 2,715 | 2.49 |
| 2 | Birmingham Railway, Light and Power | 13,298,538 | 13,014,354 | 284,184 | 4 | 118,312 | 2,686,682 | 2,626,480 | 60,202 | 4.96 |
| 3 | Decatur Street Railway | 194,647 | 194,647 | ..... | ..... | 64,240 | 91,970 | 91,970 | ..... | 2.12 |
| 4 | Alabama City, Gadsden and Attalla | 400,000 | 400,000 | ..... | ..... | 59,701 | [4]150,000 | 130,000 | 20,000 | 3.08 |
| 5 | Huntsville Railway, Light and Power | 385,274 | 385,274 | ..... | ..... | 83,393 | 209,800 | 209,800 | ..... | 1.84 |
| 6 | Mobile Light and Railroad | 6,226,037 | 5,672,192 | 553,845 | 2 | 151,258 | 1,465,125 | 1,463,625 | 1,500 | 3.88 |
| 7 | Montgomery Street Railway | 1,921,395 | 1,849,395 | 72,000 | 1 | 92,470 | 988,800 | 988,800 | ..... | 1.87 |
| 8 | Selma Street and Suburban | 441,684 | 392,809 | 48,875 | 2 | 66,918 | 194,424 | 194,424 | ..... | 2.02 |
| 9 | Tuscaloosa Belt Railway | 60,000 | 60,000 | ..... | ..... | 8,571 | 50,000 | 25,000 | 25,000 | 2.40 |
| | ARIZONA. | | | | | | | | | |
| | Total for territory | 799,710 | 797,970 | 1,740 | 2 | 46,665 | 306,600 | 306,600 | ..... | 2.60 |
| 1 | Phoenix Railway | [4]750,000 | 750,000 | ..... | ..... | 62,500 | 255,500 | [4]255,500 | ..... | 2.94 |
| 2 | Tucson Street Railway | 49,710 | 47,970 | 1,740 | 2 | 9,406 | 51,100 | 51,100 | ..... | .94 |
| | ARKANSAS. | | | | | | | | | |
| | Total for state | [5]7,835,569 | 6,880,479 | 955,090 | 11 | 131,082 | [5]2,144,776 | 2,144,196 | 580 | 3.21 |
| 1 | Citizens Electric | [6]280,734 | 255,511 | 25,223 | 1 | 80,603 | [6]201,622 | 201,042 | 580 | 1.27 |
| 2 | Fort Smith Traction | 707,072 | 654,697 | 52,375 | 1 | 86,486 | 408,800 | 408,800 | ..... | 1.60 |
| 3 | Fort Smith and Van Buren | 76,856 | 76,856 | ..... | ..... | 56,512 | 23,815 | 23,815 | ..... | 3.23 |
| 4 | Hot Springs Street Railroad | [6]1,252,354 | 1,195,000 | 57,354 | 5 | 128,772 | [6]320,872 | 320,872 | ..... | 3.72 |
| 5 | Little Rock Traction and Electric | 4,571,415 | 3,841,415 | 730,000 | 3 | 185,576 | 914,667 | 914,667 | ..... | 4.20 |
| 6 | Citizens Light and Transit | [7]837,638 | 747,500 | 90,138 | 1 | 96,452 | [7]226,000 | [4]226,000 | ..... | 3.31 |
| 7 | Texarkana Railway | 109,500 | 109,500 | ..... | ..... | 41,165 | 49,000 | 49,000 | ..... | 2.23 |
| | CALIFORNIA. | | | | | | | | | |
| | Total for state | 241,325,720 | 182,196,999 | 59,128,721 | 225 | 219,753 | 41,512,788 | 41,217,496 | 295,292 | 4.42 |
| 1 | Bakersfield and Kern Electric | 801,505 | 801,505 | ..... | ..... | 372,793 | 183,960 | 183,960 | ..... | 4.36 |
| 2 | Fresno, Belmont and Yosemite | 109,500 | 109,500 | ..... | ..... | 43,800 | 40,880 | 40,880 | ..... | 2.68 |
| 3 | Fresno Railroad | 80,000 | 80,000 | ..... | ..... | 27,586 | 30,000 | 30,000 | ..... | 2.67 |
| 4 | Nevada County Traction | 354,114 | 354,114 | ..... | ..... | 69,434 | 70,130 | 70,130 | ..... | 5.05 |
| 5 | Los Angeles Electric Incline | 300,000 | 300,000 | ..... | ..... | 2,142,857 | 9,678 | 9,678 | ..... | 31.00 |
| 6 | Los Angeles Railway | 28,148,035 | 21,548,035 | 6,600,000 | 28 | 216,107 | 6,319,617 | 6,319,617 | ..... | 3.41 |
| 7 | Los Angeles and Pasadena | 3,520,697 | 3,270,646 | 250,051 | 2 | 96,937 | 1,078,475 | 1,028,460 | 50,015 | 3.18 |
| 8 | Los Angeles Pacific Railway | 1,897,261 | 1,897,261 | ..... | ..... | 21,688 | 1,237,215 | 1,099,202 | 138,013 | 1.73 |
| 9 | Pacific Electric Railway | 884,763 | 644,251 | 240,512 | 5 | 55,158 | 237,764 | 237,764 | ..... | 2.71 |
| 10 | Los Angeles Traction | 5,435,011 | 5,040,154 | 394,857 | 6 | 173,798 | 1,937,750 | 1,937,750 | ..... | 2.60 |
| 11 | Marysville and Yuba City | 105,028 | 105,028 | ..... | ..... | 24,829 | 54,202 | 54,202 | ..... | 1.94 |
| 12 | Monrovia Street Railway | 25,000 | 25,000 | ..... | ..... | 16,667 | 7,300 | 7,300 | ..... | 3.42 |
| 13 | Monterey and Pacific Grove | 224,350 | 224,350 | ..... | ..... | 54,060 | 117,800 | 117,800 | ..... | 1.90 |
| 14 | Oakland Transit Consolidated | 22,014,083 | 17,247,022 | 4,767,061 | 38 | 140,448 | 5,488,332 | 5,449,713 | 38,619 | 3.16 |
| 15 | Ontario and San Antonio Heights | 100,368 | 100,368 | ..... | ..... | 12,546 | 70,080 | 70,080 | ..... | 1.43 |
| 16 | Pasadena and Mt. Lowe | 24,347 | 24,347 | ..... | ..... | 3,667 | 12,958 | 12,958 | ..... | 1.88 |
| 17 | Paso Robles Street Car | 8,336 | 8,336 | ..... | ..... | 3,334 | 4,290 | 4,290 | ..... | 1.94 |
| 18 | Petaluma Street Railway | 18,374 | 18,374 | ..... | ..... | 10,151 | 6,710 | 6,710 | ..... | 2.74 |
| 19 | Pomona Street Railway | [4]102,945 | 102,945 | ..... | ..... | 40,213 | [4]51,000 | 51,000 | ..... | 2.02 |
| 20 | Redlands Street Railway | 334,352 | 300,669 | 33,683 | 1 | 41,357 | 103,554 | 103,554 | ..... | 2.90 |
| 21 | Riverside and Arlington | 547,051 | 547,051 | ..... | ..... | 57,463 | 184,204 | 182,888 | 1,316 | 2.99 |
| 22 | Sacramento Electric, Gas and Railway | 4,493,791 | 3,948,791 | 545,000 | 15 | 168,034 | 1,101,904 | 1,101,904 | ..... | 3.58 |
| 23 | San Bernardino Valley | 299,854 | 289,058 | 10,796 | 2 | 37,934 | 83,673 | 83,673 | ..... | 3.45 |
| 24 | San Diego Electric Railway | 2,220,000 | 2,220,000 | ..... | ..... | 133,735 | 542,808 | 542,808 | ..... | 4.09 |
| 25 | Geary Street, Park and Ocean | 4,513,286 | 3,867,862 | 645,424 | 2 | 459,366 | 758,262 | 758,262 | ..... | 5.10 |
| 26 | California Street Cable | 9,911,151 | 8,430,261 | 1,480,890 | 4 | 776,267 | 1,456,350 | 1,456,350 | ..... | 5.79 |
| 27 | Presidio and Ferries | 4,558,543 | 3,264,229 | 1,294,314 | 2 | 362,290 | 641,670 | 641,670 | ..... | 5.09 |
| 28 | United Railroads of San Francisco | 144,005,525 | 101,795,525 | 42,210,000 | 105 | 408,899 | 17,764,299 | 17,696,970 | 67,329 | 5.75 |
| 29 | San Jose Railroad | 1,688,078 | 1,479,309 | 208,769 | 6 | 97,580 | 564,530 | 564,530 | ..... | 2.62 |
| 30 | San Jose and Santa Clara | 1,789,200 | 1,747,200 | 42,000 | 2 | 96,424 | 442,000 | 442,000 | ..... | 3.95 |
| 31 | Santa Barbara Consolidated | 1,085,905 | 814,405 | 271,500 | 2 | 95,812 | 206,400 | 206,400 | ..... | 3.95 |
| 32 | Santa Cruz Electric | 285,092 | 285,092 | ..... | ..... | 50,281 | 145,529 | 145,529 | ..... | 1.96 |
| 33 | East Santa Cruz | 61,020 | 58,100 | 2,920 | 1 | 20,386 | 36,850 | 36,850 | ..... | 1.58 |
| 34 | Santa Rosa Street Railway | 23,142 | 21,342 | 1,800 | 2 | 2,912 | 17,520 | 17,520 | ..... | 1.22 |
| 35 | Stockton Electric | 1,356,013 | 1,226,869 | 129,144 | 2 | 102,410 | 505,094 | 505,094 | ..... | 2.43 |
| | COLORADO. | | | | | | | | | |
| | Total for state | [10]52,327,717 | 42,371,590 | 9,956,127 | 55 | 183,865 | [10]8,925,060 | 8,924,560 | 500 | 4.75 |
| 1 | Boulder Railway and Utility | (12) | ..... | ..... | ..... | ..... | (12) | ..... | ..... | ..... |
| 2 | Colorado Springs and Cripple Creek | 1,223,006 | 1,223,006 | ..... | ..... | 103,821 | 253,835 | 253,835 | ..... | 4.82 |
| 3 | Colorado Springs Rapid Transit | 5,802,639 | 5,802,639 | ..... | ..... | 200,022 | 1,326,527 | 1,326,527 | ..... | 4.37 |
| 4 | Denver, Lakewood and Golden | 175,233 | 175,233 | ..... | ..... | 29,206 | 65,153 | 65,153 | ..... | 2.69 |
| 5 | Denver City Tramway | 40,532,069 | 30,910,210 | 9,621,859 | 50 | 214,998 | 6,393,755 | 6,393,755 | ..... | 4.83 |
| 6 | Durango Railway and Realty | 186,770 | 186,770 | ..... | ..... | 78,146 | 106,120 | 106,120 | ..... | 1.76 |
| 7 | Grand Junction (municipal) | 8,570 | 8,570 | ..... | ..... | 6,856 | 3,650 | 3,650 | ..... | 2.35 |
| 8 | Pueblo Traction and Lighting | 4,399,430 | 4,065,162 | 334,268 | 5 | 112,142 | 776,020 | 775,520 | 500 | 5.24 |
| | CONNECTICUT. | | | | | | | | | |
| | Total for state | [13]93,358,167 | 77,447,101 | 15,911,066 | 96 | 134,194 | [13]20,186,690 | 19,728,233 | 458,457 | 3.93 |
| 1 | Branford Lighting and Water | 662,765 | 662,765 | ..... | ..... | 101,807 | 178,553 | 178,553 | ..... | 3.71 |
| 2 | Connecticut Railway and Lighting | 26,455,490 | 21,974,671 | 4,480,819 | 24 | 137,963 | 5,154,997 | 5,076,185 | 78,812 | 4.33 |
| 3 | Bristol and Plainville Tramway | 845,980 | 838,200 | 7,780 | 1 | 105,833 | 212,335 | 212,335 | ..... | 3.95 |
| 4 | Danbury and Bethel | 1,895,155 | 1,431,576 | 463,579 | 2 | 122,044 | 347,880 | 347,780 | 100 | 4.12 |

[1] Fare passengers reported for 811 operating companies only, representing 22,496.85 miles of single track.
[2] Passenger car hours reported for 890 operating companies only, representing 2,176,886,559 fare passengers carried.
[3] For 6 companies only.
[4] Estimated.
[5] Includes 3 companies operating part of year.

## MAXIMUM SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902.

| CAR HOURS | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | | | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | | |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | |
| 65,869,342 | [2]65,408,287 | 466,055 | 33.28 | ..... | ..... | ..... | 352 | 1,218 | 47,429 | 265 | 26,690 | 122 | 3,699 | 831 | 17,040 | |
| [3]761,719 | 729,335 | 32,384 | 29.49 | ..... | ..... | ..... | 8 | 15 | 335 | 1 | 198 | 1 | 111 | 13 | 26 | |
| ..... | ..... | ..... | ..... | No. | 6 | 15 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 380,592 | 348,772 | 31,820 | 37.31 | Yes | 8 | 30 | 4 | 9 | 314 | 1 | 194 | ..... | 110 | 8 | 10 | 2 |
| 20,440 | 20,440 | ..... | 9.52 | No. | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| ..... | ..... | ..... | ..... | Yes | 10 | 12 | ..... | ..... | 1 | ..... | 1 | ..... | ..... | ..... | ..... | 4 |
| 26,150 | 26,150 | ..... | 14.73 | No. | 12 | 15 | ..... | ..... | 12 | ..... | ..... | ..... | ..... | ..... | 12 | 5 |
| 211,329 | 210,765 | 564 | 26.91 | Yes | 12 | 15 | 1 | 4 | 5 | ..... | 2 | ..... | 1 | 4 | 2 | 6 |
| 98,880 | 98,880 | ..... | 18.70 | No. | 10 | ..... | ..... | 2 | 1 | ..... | 1 | 1 | ..... | 1 | ..... | 7 |
| 24,328 | 24,328 | ..... | 16.15 | No. | 12 | 16 | 2 | ..... | 2 | ..... | ..... | ..... | ..... | ..... | 2 | 8 |
| ..... | ..... | ..... | ..... | No. | 5 | 10 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| 37,740 | 37,740 | ..... | 21.14 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | |
| 27,520 | 27,520 | ..... | 27.25 | No. | 8 | 8 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 10,220 | 10,220 | ..... | 4.69 | No. | [7] | 7 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 4 | 5 | 2 | 1 | 1 | ..... | 1 | 4 | |
| ..... | ..... | ..... | ..... | No. | 8 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| ..... | ..... | ..... | ..... | No. | 20 | 20 | 2 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 2 |
| ..... | ..... | ..... | ..... | No. | 12 | 12 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| ..... | ..... | ..... | ..... | No. | 8 | 8 | 1 | 1 | 3 | ..... | ..... | ..... | ..... | 1 | 3 | 4 |
| ..... | ..... | ..... | ..... | No. | 10 | ..... | 2 | 2 | 1 | 2 | 1 | ..... | ..... | ..... | ..... | 5 |
| ..... | ..... | ..... | ..... | No. | 12 | 12 | 1 | 1 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 6 |
| ..... | ..... | ..... | ..... | No. | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| [8]1,132,375 | 1,128,646 | 3,729 | 30.29 | ..... | ..... | ..... | 8 | 37 | 5,461 | 9 | 4,137 | ..... | 32 | 28 | 1,292 | |
| 20,835 | 20,835 | ..... | 38.47 | No. | 20 | ..... | ..... | 1 | 5 | 1 | 5 | ..... | ..... | ..... | ..... | 1 |
| ..... | ..... | ..... | ..... | No. | 5 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 2 |
| ..... | ..... | ..... | ..... | No. | 5 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| ..... | ..... | ..... | ..... | No. | 8 | 16 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 |
| 9,490 | 9,490 | ..... | 31.61 | No. | 3 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 |
| ..... | ..... | ..... | ..... | Yes | 8 | ..... | ..... | 7 | 333 | ..... | ..... | ..... | ..... | [9]7 | [9]333 | 6 |
| ..... | ..... | ..... | ..... | Yes | 8 | 20 | ..... | 1 | 17 | 1 | 17 | ..... | ..... | ..... | ..... | 7 |
| ..... | ..... | ..... | ..... | Yes | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 |
| ..... | ..... | ..... | ..... | No. | 8 | 20 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| ..... | ..... | ..... | ..... | No. | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 10 |
| ..... | ..... | ..... | ..... | No. | 5 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 11 |
| ..... | ..... | ..... | ..... | Yes | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12 |
| ..... | ..... | ..... | ..... | No. | 5 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 13 |
| 656,763 | 653,034 | 3,729 | 26.41 | Yes | 8 | 35 | 2 | 3 | 452 | ..... | 362 | ..... | 8 | 3 | 82 | 14 |
| 8,000 | 8,000 | ..... | 12.55 | Yes | 12 | 12 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 15 |
| ..... | ..... | ..... | ..... | Yes | 5 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 16 |
| ..... | ..... | ..... | ..... | No. | 5 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 17 |
| 1,493 | 1,493 | ..... | 12.31 | No. | 5 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 18 |
| ..... | ..... | ..... | ..... | No. | 15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 19 |
| 13,692 | 13,692 | ..... | 21.96 | No. | 10 | 20 | 1 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 20 |
| ..... | ..... | ..... | ..... | Yes | 8 | ..... | 1 | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 21 |
| 103,433 | 103,433 | ..... | 38.18 | No. | 8 | 12 | 1 | 1 | 11 | ..... | 3 | ..... | 1 | 1 | 7 | 22 |
| ..... | ..... | ..... | ..... | No. | 8 | 8 | ..... | 1 | 7 | ..... | ..... | ..... | ..... | 1 | 7 | 23 |
| 69,350 | 69,350 | ..... | 32.01 | No. | 8 | 8 | ..... | ..... | 3 | ..... | 3 | ..... | ..... | ..... | ..... | 24 |
| ..... | ..... | ..... | ..... | No. | 9 | ..... | ..... | ..... | 17 | ..... | 12 | ..... | ..... | ..... | 5 | 25 |
| 218,294 | 218,294 | ..... | 38.62 | No. | 8 | ..... | ..... | ..... | 42 | ..... | 31 | ..... | 3 | ..... | 8 | 26 |
| ..... | ..... | ..... | ..... | No. | 8 | ..... | 1 | 1 | 15 | 1 | 15 | ..... | ..... | ..... | ..... | 27 |
| ..... | ..... | ..... | ..... | Yes | 8 | 20 | ..... | 17 | 4,534 | 4 | 3,677 | ..... | 20 | 13 | 837 | 28 |
| ..... | ..... | ..... | ..... | No. | 8 | 12 | ..... | ..... | 5 | ..... | 3 | ..... | ..... | ..... | 2 | 29 |
| ..... | ..... | ..... | ..... | No. | 10 | 10 | ..... | 1 | 5 | ..... | ..... | ..... | ..... | 1 | 5 | 30 |
| 31,025 | 31,025 | ..... | 26.25 | Yes | 8 | ..... | ..... | 1 | 6 | 1 | 6 | ..... | ..... | ..... | ..... | 31 |
| ..... | ..... | ..... | ..... | No. | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 32 |
| ..... | ..... | ..... | ..... | No. | 5 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 33 |
| ..... | ..... | ..... | ..... | No. | 6 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 34 |
| ..... | ..... | ..... | ..... | No. | 8 | 12 | 1 | 1 | 7 | 1 | 3 | ..... | ..... | ..... | 4 | 35 |
| [11]910,004 | 910,004 | ..... | 40.54 | ..... | ..... | ..... | ..... | 10 | 880 | 2 | 77 | 1 | 15 | 7 | 788 | |
| ..... | ..... | ..... | ..... | No. | 15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| ..... | ..... | ..... | ..... | No. | 6 | 25 | ..... | 1 | 11 | 1 | 6 | ..... | 3 | ..... | 2 | 2 |
| 131,400 | 131,400 | ..... | 44.16 | No. | 8 | 16 | ..... | 1 | 71 | 1 | 59 | ..... | 8 | ..... | 4 | 3 |
| 7,665 | 7,665 | ..... | 22.86 | No. | 12 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 |
| 770,939 | 770,939 | ..... | 40.09 | Yes | 15 | 20 | ..... | 6 | 781 | ..... | ..... | ..... | ..... | [9]6 | [9]781 | 5 |
| ..... | ..... | ..... | ..... | No. | 8 | 10 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 |
| ..... | ..... | ..... | ..... | No. | 4 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 7 |
| ..... | ..... | ..... | ..... | No. | 10 | ..... | ..... | 2 | 16 | ..... | 12 | 1 | 4 | 1 | ..... | 8 |
| [14]2,225,364 | 2,198,548 | 26,816 | 32.84 | ..... | ..... | ..... | 9 | 14 | 281 | 1 | 172 | 3 | 15 | 10 | 94 | |
| ..... | ..... | ..... | ..... | No. | 12 | 15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 590,664 | 590,664 | ..... | 37.20 | Yes | 8 | 15 | 3 | 2 | 87 | 1 | 57 | 1 | 3 | ..... | 27 | 2 |
| 19,205 | 19,205 | ..... | 43.64 | No. | 10 | 15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| ..... | ..... | ..... | ..... | No. | 7 | 10 | 1 | 1 | 18 | ..... | 18 | 1 | ..... | ..... | ..... | 4 |

[6] For 9 months only.
[7] For 9½ months only.
[8] For 10 companies only.
[9] Includes passengers and employees.
[10] For 7 companies only.
[11] For 3 companies only.
[12] Not reported.
[13] Includes 2 companies operating part of year.
[14] For 16 companies only, and includes 1 company operating part of year.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | CONNECTICUT—Continued. | | | | | | | | | |
| 5 | Greenwich Tramway | [1] 465,195 | 465,195 | ..... | ..... | 80,763 | [1] 133,961 | 133,961 | ..... | 3.47 |
| 6 | Hartford and Springfield | 883,722 | 841,829 | 41,893 | 1 | 62,497 | 290,966 | 290,777 | 189 | 2.90 |
| 7 | Farmington Street Railway | 294,649 | 294,649 | ..... | ..... | 20,181 | 208,832 | 197,777 | 11,055 | 1.49 |
| 8 | Hartford Street Railway | 19,160,216 | 15,777,106 | 3,383,110 | 22 | 167,985 | 4,291,176 | 4,132,328 | 158,848 | 3.82 |
| 9 | Hartford, Manchester and Rockville | 1,298,960 | 1,123,499 | 175,461 | 2 | 61,969 | 472,431 | 445,903 | 26,528 | 2.52 |
| 10 | New York, New Haven and Hartford (Berlin sys.) | 1,645,008 | 1,645,008 | ..... | ..... | 63,588 | 494,464 | 494,464 | ..... | 3.33 |
| 11 | Meriden, Southington and Compounce | 961,820 | 961,820 | ..... | ..... | 66,839 | 323,654 | 323,206 | 448 | 2.98 |
| 12 | Meriden Electric Railroad | 3,266,383 | 2,589,737 | 676,646 | 6 | 132,807 | 689,012 | 689,012 | ..... | 3.76 |
| 13 | Middletown Street Railway | 926,199 | 792,000 | 134,199 | 2 | 79,758 | 187,860 | 187,860 | ..... | 4.22 |
| 14 | Manufacturers Railroad | [2] | ..... | ..... | ..... | ..... | 2,500 | ..... | 2,500 | ..... |
| 15 | Fair Haven and Westville | 25,016,259 | 19,275,153 | 5,741,106 | 21 | 201,475 | 5,137,357 | 4,958,804 | 178,553 | 3.89 |
| 16 | New London Street Railway | 1,452,870 | 1,320,791 | 132,079 | 1 | 155,205 | 243,209 | 243,209 | ..... | 5.43 |
| 17 | Montville Street Railway | 1,521,901 | 1,505,837 | 16,064 | 2 | 111,461 | 228,760 | 227,682 | 1,078 | 6.61 |
| 18 | Norwich Street Railway | 2,528,200 | 2,186,835 | 341,365 | 5 | 123,900 | 401,323 | 401,323 | ..... | 5.45 |
| 19 | Peoples Tramway | 1,180,918 | 1,179,019 | 1,899 | 1 | 71,716 | 379,460 | 379,114 | 346 | 3.11 |
| 20 | Stamford Street Railroad | 1,642,683 | 1,327,617 | 315,066 | 6 | 104,619 | 384,254 | 384,254 | ..... | 3.46 |
| 21 | New York, New Haven and Hartford (New Canaan branch). | 204,900 | 204,900 | ..... | ..... | 23,743 | 139,602 | 139,602 | ..... | 1.47 |
| 22 | Suffield Street Railway | [3] 91,922 | 91,922 | ..... | ..... | 18,721 | [3] 51,858 | 51,858 | ..... | 1.77 |
| 23 | Torrington and Winchester | 956,972 | 956,972 | ..... | ..... | 73,444 | 232,246 | 232,246 | ..... | 4.12 |
| | DELAWARE. | | | | | | | | | |
| | Total for state | 11,440,702 | 9,956,559 | 1,484,143 | 26 | 116,301 | 3,006,798 | 2,969,238 | 37,560 | 3.35 |
| 1 | Wilmington and New Castle | 584,000 | 584,000 | ..... | ..... | 33,371 | 338,840 | 301,280 | 37,560 | 1.94 |
| 2 | Peoples Railway | 1,634,102 | 1,467,473 | 166,629 | 7 | 46,765 | 746,758 | 746,758 | ..... | 1.97 |
| 3 | Wilmington City | 9,222,600 | 7,905,086 | 1,317,514 | 19 | 193,847 | 1,921,200 | 1,921,200 | ..... | 4.11 |
| | DISTRICT OF COLUMBIA. | | | | | | | | | |
| | Total for district | 90,203,941 | 66,162,321 | 24,041,620 | 69 | 408,485 | 16,139,141 | 16,082,204 | 56,937 | 4.11 |
| 1 | Anacostia and Potomac River | 8,435,988 | 6,072,874 | 2,363,114 | 12 | 265,191 | 1,165,799 | 1,163,887 | 1,912 | 5.22 |
| 2 | Brightwood Railway | 2,012,012 | 1,236,983 | 775,029 | 4 | 105,815 | 407,486 | 407,388 | 98 | 3.04 |
| 3 | Capital Traction | 36,871,334 | 28,362,565 | 8,508,769 | 15 | 685,749 | 8,787,603 | 8,781,343 | 6,260 | 3.23 |
| 4 | City and Suburban of Washington | 6,816,021 | 5,423,810 | 1,392,211 | 12 | 166,273 | 1,161,666 | 1,159,639 | 2,027 | 4.68 |
| 5 | Columbia Railway | 8,027,781 | 5,010,160 | 3,017,621 | 7 | 340,364 | 976,213 | 975,913 | 300 | 5.13 |
| 6 | Georgetown and Tennallytown | 1,037,338 | 768,617 | 268,721 | 2 | 92,382 | 209,766 | 208,814 | 952 | 3.68 |
| 7 | Metropolitan Railroad | 25,176,882 | 17,723,360 | 7,453,522 | 16 | 767,910 | 3,133,193 | 3,089,042 | 44,151 | 5.74 |
| 8 | Washington and Great Falls | 1,826,585 | 1,563,952 | 262,633 | 1 | 111,871 | 297,415 | 296,178 | 1,237 | 5.28 |
| | FLORIDA. | | | | | | | | | |
| | Total for state | [5] 9,541,727 | 8,249,542 | 1,292,185 | 13 | 133,596 | [5] 2,349,449 | 2,258,463 | 90,986 | 3.65 |
| 1 | Fort Meade Street Railway | 3,650 | 3,650 | ..... | ..... | 2,920 | [7] 2,078 | 1,217 | 861 | 3.00 |
| 2 | Jacksonville Electric | [3] 3,352,775 | 2,863,685 | 489,090 | 4 | 157,779 | [3] 872,440 | 872,440 | ..... | 3.28 |
| 3 | Key West Electric | 711,035 | 711,035 | ..... | ..... | 190,116 | 175,511 | 175,511 | ..... | 4.05 |
| 4 | Palatka and Heights Street Railway | 10,880 | 10,880 | ..... | ..... | 3,109 | 7,300 | 7,300 | ..... | 1.49 |
| 5 | Pensacola Electric Terminal | 1,215,121 | 998,290 | 216,831 | 4 | 110,921 | 385,988 | 385,988 | ..... | 2.59 |
| 6 | Tampa Electric | 4,248,266 | 3,662,002 | 586,264 | 5 | 140,258 | 906,132 | 816,007 | 90,125 | 4.49 |
| | GEORGIA. | | | | | | | | | |
| | Total for state | 37,004,361 | 32,463,851 | 4,540,510 | 63 | 108,076 | 10,733,429 | 10,690,826 | 42,603 | 3.04 |
| 1 | Athens Electric Railway | 400,340 | 356,969 | 43,371 | 2 | 54,666 | 156,372 | 141,372 | 15,000 | 2.53 |
| 2 | Georgia Railway and Electric | [10] 22,432,672 | 19,045,312 | 3,387,360 | 21 | 124,479 | [10] 5,977,212 | 5,977,212 | ..... | 3.19 |
| 3 | Augusta Railway and Electric | 2,518,586 | 2,360,674 | 157,912 | 6 | 76,102 | 932,381 | 932,381 | ..... | 2.53 |
| 4 | Columbus Railroad | 1,386,373 | 1,217,479 | 168,894 | 2 | 71,616 | 474,216 | 474,216 | ..... | 2.57 |
| 5 | Covington and Oxford | 41,000 | 41,000 | ..... | ..... | 18,222 | 6,205 | 6,205 | ..... | 6.61 |
| 6 | Macon Railway and Light | 2,980,181 | 2,893,764 | 86,417 | 1 | 94,352 | 949,317 | 949,317 | ..... | 3.05 |
| 7 | City Electric Railway | 451,449 | 385,749 | 65,700 | 1 | 61,425 | 219,000 | 219,000 | ..... | 1.76 |
| 8 | Savannah Electric | 6,618,558 | 5,987,702 | 630,856 | 30 | 112,869 | 1,931,686 | 1,912,283 | 19,403 | 3.13 |
| 9 | Valdosta Street Railway | 158,802 | 158,802 | ..... | ..... | 76,347 | 65,700 | 65,700 | ..... | 2.42 |
| 10 | Washington Street Railway | 16,400 | 16,400 | ..... | ..... | 10,933 | 21,340 | 13,140 | 8,200 | 1.25 |
| | IDAHO. | | | | | | | | | |
| | Total for state | 314,340 | 314,340 | ..... | ..... | 89,811 | 164,250 | 164,250 | ..... | 1.91 |
| 1 | Boise Rapid Transit | 314,340 | 314,340 | ..... | ..... | 89,811 | 164,250 | 164,250 | ..... | 1.91 |
| | ILLINOIS. | | | | | | | | | |
| | Total for state | [11] 590,598,228 | 463,190,986 | 127,407,242 | 592 | 287,035 | [11] 121,142,474 | 120,835,074 | 307,400 | 3.83 |
| 1 | Alton Railway, Gas and Electric | 1,665,130 | 1,497,130 | 168,000 | 3 | 122,215 | 401,500 | 401,500 | ..... | 3.73 |
| 2 | Elgin, Aurora and Southern | 6,058,266 | 5,422,785 | 635,481 | 2 | 86,131 | 1,725,238 | 1,725,238 | ..... | 3.14 |
| 3 | Bloomington and Normal | [12] 1,869,349 | 1,309,781 | 559,568 | 4 | 62,371 | [12] 1,396,490 | 1,396,490 | ..... | .94 |
| 4 | Mechanicsburg and Buffalo | 4,000 | 4,000 | ..... | ..... | 1,081 | 8,293 | 8,293 | ..... | .48 |
| 5 | Cairo Electric Railway | 805,447 | 684,319 | 121,128 | 1 | 120,691 | 261,000 | 261,000 | ..... | 2.62 |
| 6 | Egypt Electric | 186,519 | 186,519 | ..... | ..... | 46,630 | 233,600 | 233,600 | ..... | .80 |
| 7 | Centralia and Central City | 80,956 | 80,956 | ..... | ..... | 23,671 | 38,325 | 38,325 | ..... | 2.11 |
| 8 | Urbana and Champaign | 1,078,922 | 1,032,442 | 46,480 | 1 | 114,716 | 202,822 | 196,122 | 6,700 | 5.26 |
| 9 | Chicago City Railway | 167,279,723 | 117,863,990 | 49,415,733 | 75 | 529,726 | 30,842,510 | 30,643,250 | 199,260 | 3.85 |
| 10 | Chicago Union Traction | 220,452,619 | 156,136,898 | 64,315,721 | 300 | 511,388 | 30,732,051 | 30,732,051 | ..... | 5.08 |
| 11 | Chicago Consolidated Traction | 24,172,655 | 20,808,682 | 3,363,973 | 130 | 100,764 | 8,016,591 | 8,016,591 | ..... | 2.60 |
| 12 | Calumet Electric Street Railway | 8,480,219 | 6,549,719 | 1,930,500 | 20 | 80,921 | 2,393,978 | 2,393,978 | ..... | 2.74 |
| 13 | Chicago Electric Traction | 2,066,402 | 1,898,647 | 167,755 | 5 | 70,634 | 954,000 | 954,000 | ..... | 1.99 |

[1] For 10½ months only.
[2] Freight traffic only.
[3] For 5 months only.
[4] For 7 companies only.
[5] Includes 1 company operating part of year.
[6] For 2 companies only, and includes 1 company operating part of year.
[7] Estimated.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. |
| | | | | No. | 12 | | | | | | | | | | |
| | | | | No. | 13 | 17 | | 2 | 1 | | | | | 2 | 1 |
| 17,244 | 14,144 | 3,100 | 20.83 | No. | 10 | 20 | | | 6 | | | | 6 | | |
| 510,230 | 492,074 | 18,156 | 32.06 | Yes. | 10 | 15 | | 3 | 62 | | 27 | 1 | | 2 | 35 |
| 41,219 | 38,099 | 3,120 | 29.49 | Yes. | 8 | 16 | | 1 | 9 | | 4 | | | 1 | 5 |
| | | | | Yes. | | | | | | | | | | | |
| 38,036 | 38,036 | | 25.29 | Yes. | 8 | 15 | | | 5 | | 3 | | | | 2 |
| 118,260 | 118,260 | | 21.90 | Yes. | 8 | | 1 | | 20 | | 15 | | 3 | | 2 |
| 32,840 | 32,840 | | 24.12 | Yes. | 10 | 15 | 1 | | | | | | | | |
| | | | | No. | 4 | | | | | | | | | | |
| 617,400 | 615,000 | 2,400 | 31.34 | Yes. | 12 | 14 | 1 | 5 | 52 | | 35 | | 3 | 5 | 14 |
| 39,420 | 39,420 | | 33.51 | No. | 7 | | | | | | | | | | |
| 18,036 | 18,036 | | 33.49 | Yes. | 7 | 18 | | | 4 | | 3 | | | | 1 |
| 60,768 | 60,768 | | 35.99 | Yes. | 7 | 11 | | | 4 | | 2 | | | | 2 |
| 81,632 | 81,592 | 40 | 37.32 | No. | 12 | 18 | 1 | | 12 | | 7 | | | | 5 |
| 59,130 | 59,130 | | 22.45 | No. | 12 | | | | 1 | | 1 | | | | |
| | | | | Yes. | | | | | | | | | | | |
| [2] 5,400 | 5,400 | | 17.02 | No. | 12 | | | | | | | | | | |
| 25,880 | 25,880 | | 36.98 | No. | 12 | 15 | 1 | | | | | | | | |
| 236,520 | 236,520 | | 33.42 | | | | 3 | 6 | 98 | 1 | 58 | | 2 | 5 | 38 |
| | | | | No. | 6 | 20 | 1 | | 6 | | 3 | | | | 3 |
| | | | | No. | 7 | 15 | 1 | 2 | 30 | 1 | 30 | | | 1 | |
| 236,520 | 236,520 | | 33.42 | No. | 7 | 12 | 1 | 4 | 57 | | 20 | | 2 | 4 | 35 |
| [4] 889,767 | 883,763 | 6,004 | 42.77 | | | | 1 | 10 | 615 | 3 | 380 | 2 | 38 | 5 | 197 |
| 159,050 | 158,798 | 252 | 38.24 | Yes. | 12 | | | 1 | 70 | 1 | 43 | | 6 | | 21 |
| 45,806 | 45,791 | 15 | 27.01 | Yes. | 12 | | | | 37 | | 22 | | 3 | | 12 |
| | | | | Yes. | 12 | 15 | 1 | | 151 | | 84 | | 4 | | 63 |
| 132,951 | 132,677 | 274 | 40.88 | Yes. | 12 | 15 | | | 70 | | 37 | | 7 | | 26 |
| 116,068 | 116,021 | 37 | 43.18 | No. | 12 | | | 3 | 58 | 1 | 37 | | 3 | 2 | 18 |
| 23,736 | 23,602 | 134 | 32.57 | No. | | 15 | | 1 | 14 | 1 | 13 | | | | 1 |
| 390,589 | 385,525 | 5,064 | 45.97 | Yes. | 12 | | | 3 | 202 | | 137 | 1 | 13 | 2 | 52 |
| 21,577 | 21,349 | 228 | 78.26 | Yes. | | 15 | | 2 | 13 | | 7 | 1 | 2 | 1 | 4 |
| [6] 125,641 | 125,641 | | 28.45 | | | | 4 | 3 | 62 | 1 | 52 | | | 2 | 10 |
| | | | | Yes. | 5 | | | | | | | | | | |
| [6] 100,568 | 100,568 | | 28.48 | Yes. | 12 | 9 | 1 | 2 | 48 | | 40 | | | 2 | 8 |
| 25,073 | 25,073 | | 28.36 | No. | 12 | | 1 | | | | | | | | |
| | | | | No. | 10 | | | | | | | | | | |
| | | | | No. | 10 | | | | 4 | | 3 | | | | 1 |
| | | | | Yes. | 12 | 12 | 2 | 1 | 10 | 1 | 9 | | | | 1 |
| [9] 925,416 | 925,416 | | 28.37 | | | | 12 | 3 | 70 | | 35 | 1 | 7 | 2 | 28 |
| | | | | No. | 12 | 12 | | | 1 | | 1 | | | | |
| [10] 625,868 | 625,868 | | 30.43 | No. | 15 | 20 | 1 | | | | | | | | |
| | | | | No. | 12 | | 2 | 1 | 15 | | 15 | 1 | | | |
| 61,631 | 61,631 | | 19.75 | No. | | | 2 | | 12 | | 4 | | 1 | | 7 |
| | | | | Yes. | 6 | 6 | | | | | | | | | |
| | | | | No. | 8 | 8 | 2 | | 2 | | | | | | 2 |
| | | | | No. | 8 | 12 | 1 | | | | | | | | |
| 237,917 | 237,917 | | 25.17 | Yes. | 9 | 15 | 3 | 2 | 40 | | 15 | | 6 | 2 | 19 |
| | | | | No. | 12 | 12 | 1 | | | | | | | | |
| | | | | No. | 6 | | | | | | | | | | |
| | | | | | | | | 1 | | | | | | 1 | |
| | | | | No. | 8 | 12 | | 1 | | | | | | 1 | |
| [12] 12,014,959 | 11,990,052 | 24,907 | 35.81 | | | | 18 | 136 | 6,282 | 54 | 2,590 | 12 | 685 | 70 | 3,007 |
| | | | | Yes. | 18 | | 1 | | 1 | | | | | | 1 |
| 186,150 | 186,150 | | 29.13 | No. | 10 | 30 | 1 | 3 | 60 | 1 | 32 | | 8 | 2 | 20 |
| | | | | No. | 15 | 20 | 1 | | 4 | | 4 | | | | |
| | | | | Yes. | 7 | 7 | | | | | | | | | |
| | | | | No. | 12 | | | | | | | | | | |
| | | | | No. | 10 | | | | 1 | | | | | | 1 |
| | | | | No. | 6 | 6 | | | | | | | | | |
| | | | | Yes. | 15 | 20 | 1 | | | | | | | | |
| 3,888,751 | 3,863,844 | 24,907 | 30.50 | Yes. | | | | 40 | 2,286 | 5 | 67 | 1 | 415 | 34 | 1,754 |
| 3,941,638 | 3,941,638 | | 39.61 | Yes. | 12 | | | 37 | 2,815 | 35 | 1,737 | 2 | 125 | | 953 |
| 770,958 | 770,958 | | 26.99 | Yes. | 12 | | | 3 | 478 | 3 | 331 | | 67 | | 80 |
| 220,896 | 220,896 | | 29.65 | No. | 15 | 25 | | 6 | 101 | | 59 | | 17 | 6 | 25 |
| 97,000 | 97,000 | | 19.57 | No. | 12 | 20 | 1 | 1 | 7 | 1 | 7 | | | | |

[2] For 10 months only.
[6] For 3 companies only.
[10] Estimate based on report for 8 months.
[11] Includes 6 companies operating part of year.
[12] For 20 companies only, and includes 1 company operating part of year.
[13] For 6 months only.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | ILLINOIS—Continued. | | | | | | | | | |
| 14 | Chicago General Railway | 2,164,877 | 1,805,665 | 359,212 | 2 | 70,150 | 501,385 | 501,385 | ..... | 3.60 |
| 15 | Chicago General Electric Railway | 72 | 72 | ..... | ..... | 48 | 5,475 | 5,475 | ..... | .01 |
| 16 | Suburban Railroad | 803,694 | 803,694 | ..... | ..... | 18,438 | 490,100 | 490,100 | ..... | 1.64 |
| 17 | Northwestern Elevated Railroad | 21,769,081 | 21,769,081 | ..... | ..... | 716,796 | 5,365,474 | 5,365,474 | ..... | 4.06 |
| 18 | South Side Elevated Railroad | 27,188,965 | 27,188,965 | ..... | ..... | 1,179,053 | 7,774,749 | 7,774,749 | ..... | 3.50 |
| 19 | Metropolitan West Side Elevated | 35,372,909 | 35,372,909 | ..... | ..... | 855,658 | 9,823,704 | 9,823,704 | ..... | 3.60 |
| 20 | South Chicago City Railway | 5,157,258 | 4,532,047 | 625,211 | 7 | 117,961 | 1,399,985 | 1,399,985 | ..... | 3.24 |
| 21 | Chicago and Milwaukee | 1,861,156 | 1,861,156 | ..... | ..... | 41,824 | 1,136,966 | 1,136,966 | ..... | 1.64 |
| 22 | Lake Street Elevated Railroad | 15,515,475 | 15,515,475 | ..... | ..... | 585,711 | 4,190,645 | 4,190,645 | ..... | 3.70 |
| 23 | Chicago and Joliet | 5,014,912 | 4,439,692 | 575,220 | 1 | 70,595 | 1,346,654 | 1,346,654 | ..... | 3.30 |
| 24 | Northern Electric Railway | 38,250 | 38,250 | ..... | ..... | 9,562 | 75,000 | 75,000 | ..... | .51 |
| 25 | Danville Railway and Light | 1,531,107 | 1,458,198 | 72,909 | 1 | 116,656 | 447,700 | 447,700 | ..... | 3.26 |
| 26 | Danville, Paxton and Northern | [1] 428,167 | 428,167 | ..... | ..... | 30,583 | [1] 92,150 | 92,150 | ..... | 4.65 |
| 27 | Decatur Traction and Electric | 2,010,676 | 1,596,305 | 414,371 | 1 | 118,245 | 653,080 | 653,080 | ..... | 2.44 |
| 28 | East St. Louis Railway | 6,010,499 | 4,794,036 | 1,216,463 | 3 | 240,303 | 1,295,632 | 1,295,632 | ..... | 3.70 |
| 29 | St. Louis and Belleville | [2] | ..... | ..... | ..... | ..... | 35,040 | ..... | 35,040 | ..... |
| 30 | East St. Louis and Suburban | 5,636,101 | 5,386,653 | 249,448 | 1 | 92,522 | 1,177,566 | 1,136,166 | 41,400 | 4.74 |
| 31 | St. Louis and East St. Louis | 2,000,000 | 2,000,000 | ..... | ..... | 943,396 | 175,000 | 175,000 | ..... | 11.43 |
| 32 | Granite City and St. Louis | [1] 882,465 | 738,114 | 144,351 | 1 | 55,707 | [1] 164,977 | 164,977 | ..... | 4.47 |
| 33 | Freeport Electric | 495,000 | 420,000 | 75,000 | 2 | 56,000 | 164,250 | 164,250 | ..... | 2.56 |
| 34 | Galesburg Electric Motor | 1,810,000 | 1,750,000 | 60,000 | 2 | 102,941 | 565,750 | 565,750 | ..... | 3.09 |
| 35 | Chicago, Harvard and Geneva Lake | 73,000 | 73,000 | ..... | ..... | 6,565 | 85,000 | 60,000 | 25,000 | 1.22 |
| 36 | Jacksonville Railway | 636,149 | 606,149 | 30,000 | 1 | 116,792 | 225,000 | 225,000 | ..... | 2.69 |
| 37 | Kankakee Electric Railway | 657,741 | 375,852 | 281,889 | 1 | 44,480 | 94,476 | 94,476 | ..... | 3.98 |
| 38 | North Kankakee Light and Railway | 338,917 | 338,917 | ..... | ..... | 78,272 | 94,900 | 94,900 | ..... | 3.57 |
| 39 | Lincoln Street Car | [3] 63,120 | 58,440 | 4,680 | 1 | 8,289 | [3] 25,200 | 25,200 | ..... | 2.32 |
| 40 | Coal Belt Electric Railway | [4] 282,085 | 282,085 | ..... | ..... | 16,305 | [4] 290,000 | 290,000 | ..... | .97 |
| 41 | Murphysboro Street Railway | 22,256 | 22,256 | ..... | ..... | 14,359 | 6,528 | 6,528 | ..... | 3.41 |
| 42 | Ottawa Railway, Light and Power | 448,056 | 408,056 | 40,000 | 1 | 48,007 | 181,008 | 181,008 | ..... | 2.25 |
| 43 | Peoria and Prospect Heights | [5] 750,000 | 750,000 | ..... | ..... | 115,385 | 328,500 | 328,500 | ..... | 2.28 |
| 44 | Central Railway | [5] 6,000,000 | 6,000,000 | ..... | 16 | 171,429 | 2,543,941 | 2,543,941 | ..... | 2.36 |
| 45 | Peoria and Pekin Terminal | 704,905 | 704,905 | ..... | ..... | 49,711 | 263,792 | 263,792 | ..... | 2.67 |
| 46 | Quincy Horse Railway | 2,802,287 | 2,127,623 | 674,614 | 4 | 122,418 | 744,965 | 744,965 | ..... | 2.86 |
| 47 | Rockford Railway, Light and Power | 2,446,060 | 1,989,080 | 456,980 | 1 | 86,482 | 694,362 | 694,362 | ..... | 2.86 |
| 48 | Rockford and Belvidere | 163,823 | 163,673 | 150 | 1 | 11,074 | 34,160 | 34,160 | ..... | 4.79 |
| 49 | Springfield Consolidated | 4,917,918 | 3,532,013 | 1,385,905 | 3 | 148,217 | 1,260,000 | 1,260,000 | ..... | 2.80 |
| 50 | Peoples Light and Railway | [4] 401,090 | 384,590 | 16,500 | 1 | 69,925 | [4] 182,962 | 182,962 | ..... | 2.10 |
| | INDIANA. | | | | | | | | | |
| | Total for state | [6] 80,974,221 | 66,255,767 | 14,718,454 | 62 | 102,458 | [6] 21,095,357 | 20,931,788 | 163,569 | 3.17 |
| 1 | Brownstown and Ewing | 20,000 | 20,000 | ..... | ..... | 20,000 | 7,094 | 7,094 | ..... | 2.82 |
| 2 | John S. Crump | 133,466 | 133,466 | ..... | ..... | 30,333 | 132,860 | 132,860 | ..... | 1.00 |
| 3 | Evansville Electric Railway | 4,642,836 | 3,629,534 | 1,013,302 | 4 | 119,001 | 1,309,838 | 1,309,838 | ..... | 2.77 |
| 4 | Fort Wayne Traction | 5,663,409 | 4,231,766 | 1,431,643 | 4 | 132,243 | 1,505,774 | 1,505,774 | ..... | 2.81 |
| 5 | Fort Wayne and Southwestern | [1] 113,723 | 113,723 | ..... | ..... | 4,272 | [1] 140,048 | 140,048 | ..... | .81 |
| 6 | Hammond, Whiting and East Chicago | 2,337,255 | 1,956,616 | 380,639 | 4 | 78,579 | 590,234 | 590,234 | ..... | 3.31 |
| 7 | Indianapolis Street Railway | 38,925,929 | 30,005,026 | 8,920,903 | 27 | 273,121 | 6,921,490 | 6,921,490 | ..... | 4.34 |
| 8 | Broad Ripple Traction | 417,881 | 417,881 | ..... | ..... | 58,039 | 119,710 | 119,710 | ..... | 3.49 |
| 9 | Indianapolis, Shelbyville and Southeastern | [3] 111,814 | 111,814 | ..... | ..... | 3,721 | [3] 93,985 | 93,985 | ..... | 1.19 |
| 10 | Indianapolis and Eastern | 570,183 | 570,183 | ..... | ..... | 20,191 | 368,661 | 342,831 | 25,830 | 1.66 |
| 11 | Union Traction | 11,195,770 | 9,720,454 | 1,475,316 | 8 | 64,777 | 3,876,166 | 3,800,342 | 75,824 | 2.56 |
| 12 | Indianapolis, Greenwood and Franklin | 559,639 | 559,639 | ..... | ..... | 25,438 | 457,710 | 457,710 | ..... | 1.22 |
| 13 | Jeffersonville City Railway | 91,000 | 91,000 | ..... | ..... | 50,838 | 25,550 | 25,550 | ..... | 3.56 |
| 14 | Kokomo Railway and Light | 631,877 | 576,877 | 55,000 | 2 | 53,663 | 219,000 | 219,000 | ..... | 2.63 |
| 15 | Lafayette Street Railway | 1,834,955 | 1,475,135 | 359,820 | 2 | 100,623 | 611,000 | 611,000 | ..... | 2.41 |
| 16 | Logansport Railway | [2] 269,441 | 261,441 | 8,000 | 1 | 42,442 | [3] 102,000 | 102,000 | ..... | 2.56 |
| 17 | Logansport, Rochester and Northern | [1] 162,733 | 153,641 | 9,092 | 1 | 25,607 | [1] 120,772 | 120,772 | ..... | 1.27 |
| 18 | Madison Light and Railway | 165,000 | 165,000 | ..... | ..... | 41,250 | 176,996 | 176,996 | ..... | .93 |
| 19 | Lake Cities | 198,000 | 198,000 | ..... | ..... | 96,117 | 84,720 | 84,720 | ..... | 2.34 |
| 20 | Highland Railroad | 56,118 | 56,118 | ..... | ..... | 28,059 | 25,806 | 25,806 | ..... | 2.17 |
| 21 | New Albany Street Railroad | 913,453 | 913,453 | ..... | ..... | 149,501 | 210,240 | 210,240 | ..... | 4.34 |
| 22 | Richmond Street and Interurban | 1,380,500 | 1,200,300 | 180,200 | 2 | 39,354 | 540,200 | 540,200 | ..... | 2.22 |
| 23 | Indiana Railway | 4,278,157 | 3,946,728 | 331,429 | 2 | 80,959 | 1,333,707 | 1,301,311 | 32,396 | 3.03 |
| 24 | Terre Haute Electric | 4,262,493 | 3,709,383 | 553,110 | 5 | 97,385 | 1,330,522 | 1,306,453 | 24,069 | 2.84 |
| 25 | Vincennes Citizens | 450,000 | 450,000 | ..... | ..... | 56,250 | 388,725 | 388,725 | ..... | 1.16 |
| 26 | Wabash River Traction | 1,391,409 | 1,391,409 | ..... | ..... | 70,096 | 315,303 | 309,853 | 5,450 | 4.49 |
| 27 | Washington Street Railway | 197,180 | 197,180 | ..... | ..... | 49,919 | 87,246 | 87,246 | ..... | 2.26 |
| | IOWA. | | | | | | | | | |
| | Total for state | 44,076,534 | 38,559,589 | 5,516,945 | 61 | 101,942 | 11,809,254 | 11,688,888 | 120,366 | 3.30 |
| 1 | Boone Electric | 480,000 | 480,000 | ..... | ..... | 73,846 | 128,200 | 128,000 | ..... | 3.74 |
| 2 | Burlington Railway and Light | 2,000,000 | 1,600,000 | 400,000 | 2 | 110,345 | 548,240 | 548,240 | ..... | 2.92 |
| 3 | Cedar Rapids and Marion City | 1,545,088 | 1,403,064 | 142,024 | 4 | 101,745 | 498,185 | 486,418 | 11,767 | 2.88 |
| 4 | Peoples Street Railway | 145,000 | 145,000 | ..... | ..... | 89,506 | 45,072 | 45,072 | ..... | 3.22 |
| 5 | State Electric | 1,152,835 | 1,109,835 | 43,000 | 2 | 130,262 | 327,257 | 327,257 | ..... | 3.39 |
| 6 | Omaha and Council Bluffs | 3,146,916 | 2,792,659 | 354,257 | 2 | 83,613 | 1,320,111 | 1,320,111 | ..... | 2.12 |
| 7 | Tri-City Railway | 10,084,812 | 9,042,176 | 1,042,636 | 12 | 179,408 | 2,473,016 | 2,473,016 | ..... | 3.66 |
| 8 | Des Moines City Railway | [10] 12,457,283 | 10,515,912 | 1,941,371 | 11 | 110,484 | [10] 2,234,122 | 2,234,122 | ..... | 4.71 |
| 9 | Interurban Railway | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 10 | Union Electric | 2,718,228 | 2,391,355 | 326,873 | 10 | 114,693 | 803,320 | 803,320 | ..... | 2.98 |
| 11 | Fort Dodge Light and Power | 56,000 | 56,000 | ..... | ..... | 37,333 | 6,900 | 6,900 | ..... | 8.12 |
| 12 | Fort Madison Street Railway | 292,423 | 292,423 | ..... | ..... | 73,106 | 109,500 | 109,500 | ..... | 2.67 |
| 13 | Independence and Rush Park | 94,288 | 94,288 | ..... | ..... | 27,732 | 51,000 | 51,000 | ..... | 1.85 |
| 14 | Keokuk Railway and Power | 350,000 | 300,000 | 50,000 | 2 | 46,154 | 250,000 | 250,000 | ..... | 1.20 |
| 15 | Marshalltown Light, Power and Railway | 398,015 | 395,080 | 2,935 | 1 | 109,744 | 132,495 | 132,495 | ..... | 2.98 |
| 16 | Mason City and Clear Lake | 293,320 | 287,845 | 5,475 | 3 | 16,600 | 158,633 | 146,466 | 12,167 | 1.97 |
| 17 | Citizens Railway and Light | 1,153,494 | 865,120 | 288,374 | 1 | 100,595 | 255,500 | 255,500 | ..... | 3.39 |
| 18 | Ottumwa Traction and Light | 1,481,028 | 1,211,028 | 270,000 | 2 | 121,103 | 396,288 | 396,288 | ..... | 3.06 |
| 19 | Red Oak Street Railway | 25,820 | 25,820 | ..... | ..... | 21,517 | 15,768 | 15,768 | ..... | 1.64 |
| 20 | Sioux City Traction | 4,738,944 | 4,138,944 | 600,000 | 3 | 96,255 | 1,475,695 | 1,475,695 | ..... | 2.80 |
| 21 | Tama and Toledo | 144,000 | 144,000 | ..... | ..... | 48,000 | 43,800 | 43,800 | ..... | 3.29 |
| 22 | Waterloo and Cedar Falls | 1,319,040 | 1,269,040 | 50,000 | 6 | 31,726 | 536,152 | 439,720 | 96,432 | 2.89 |

[1] For 6 months only.
[2] Freight traffic only.
[3] For 4 months only.
[4] For 10 months only.
[5] Estimated.
[6] Includes 4 companies operating part of year.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | | | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | | |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | |
| 56,000 | 56,000 | | 32.24 | No. | 9 | | | 2 | 13 | | 4 | | 2 | 2 | 7 | 14 |
| 3,650 | 3,650 | | .02 | No. | 10 | | | | | | | | | | | 15 |
| 60,862 | 60,862 | | 13.21 | No. | 15 | | | 1 | 4 | | 1 | | | 1 | 3 | 16 |
| 382,378 | 382,378 | | 56.93 | No. | 30 | | | 3 | 34 | 2 | 31 | 1 | 2 | | 1 | 17 |
| 554,400 | 554,400 | | 49.04 | No. | 25 | | | 3 | 7 | 2 | 1 | 1 | 5 | | 1 | 18 |
| 818,642 | 818,642 | | 43.21 | No. | 16 | | | 2 | 22 | 1 | 22 | 1 | | | | 19 |
| 134,929 | 134,929 | | 33.59 | No. | 12 | | | | 135 | | 68 | | 4 | | 63 | 20 |
| 76,668 | 76,668 | | 24.28 | No. | 20 | 40 | | 3 | 41 | | 25 | | 6 | 3 | 10 | 21 |
| 279,376 | 279,376 | | 55.54 | No. | 40 | | | 3 | 79 | 1 | 65 | 1 | 8 | 1 | 6 | 22 |
| 140,156 | 140,156 | | 31.68 | No. | 10 | 25 | | 6 | 99 | 1 | 71 | 3 | 13 | 2 | 15 | 23 |
| | | | | No. | 10 | | | | | | | | | | | 24 |
| | | | | No. | 12 | 15 | | 6 | 11 | | 11 | 1 | | 5 | | 25 |
| | | | | No. | 15 | 16 | | 1 | 3 | | 1 | | | 1 | 2 | 26 |
| | | | | No. | 10 | 10 | | 1 | 3 | | | | | 1 | 3 | 27 |
| | | | | No. | 10 | | | 1 | 22 | 1 | 7 | | 3 | | 12 | 28 |
| | | | | No. | | 10 | | | | | | | | | | 29 |
| | | | | Yes. | 10 | 40 | | 4 | 12 | | 6 | | | 4 | 6 | 30 |
| | | | | No. | 10 | | | | | | | | | | | 31 |
| | | | | No. | 18 | 30 | | 1 | 2 | | 2 | | | 1 | | 32 |
| | | | | No. | 8 | 12 | | 1 | 1 | | | 1 | 1 | | | 33 |
| | | | | No. | 10 | 20 | | 2 | 6 | 1 | | | | 1 | 6 | 34 |
| | | | | Yes. | 10 | 12 | | | | | | | | | | 35 |
| | | | | No. | 8 | 9 | | | | | | | | | | 36 |
| | | | | Yes. | 8 | | 1 | | | | | | | | | 37 |
| | | | | Yes. | 8 | 8 | 1 | | | | | | | | | 38 |
| | | | | No. | 12 | | | | 1 | | 1 | | | | | 39 |
| [4]24,000 | 24,000 | | 11.75 | Yes. | 8 | 25 | 1 | 2 | 2 | | | | 2 | 2 | | 40 |
| | | | | No. | 4 | | 1 | | | | | | | | | 41 |
| 43,435 | 43,435 | | 9.39 | No. | 8 | 15 | 1 | 1 | 2 | | 1 | | 1 | 1 | | 42 |
| 39,420 | 39,420 | | 19.03 | Yes. | | | 1 | | 16 | | 6 | | 1 | | 9 | 43 |
| 296,650 | 296,650 | | 20.29 | No. | 12 | | 2 | 2 | 32 | | 10 | | 2 | 2 | 20 | 44 |
| | | | | Yes. | 7 | 12 | 1 | | 5 | | | | 2 | | 3 | 45 |
| | | | | Yes. | 12 | | | | 12 | | 5 | | 1 | | 6 | 46 |
| | | | | No. | 8 | | 2 | | | | | | | | | 47 |
| | | | | No. | 12 | 30 | 1 | | | | | | | | | 48 |
| | | | | No. | 8 | | 1 | 1 | 15 | | 15 | | | 1 | | 49 |
| | | | | No. | 9 | | | | | | | | | | | 50 |
| [7]1,535,344 | 1,522,321 | 13,023 | 23.46 | | | | 11 | 20 | 2,636 | 2 | 1,900 | 3 | 84 | 15 | 652 | |
| 3,650 | 3,650 | | 5.48 | No. | 4 | | | | | | | | | | | 1 |
| 15,280 | 15,280 | | 8.76 | No. | 12 | | | | | | | | | | | 2 |
| 165,114 | 165,114 | | 21.98 | No. | 15 | 15 | | 2 | 23 | | | | | 2 | 23 | 3 |
| 178,054 | 178,054 | | 23.77 | No. | 15 | 15 | 1 | | 10 | | | | | | 10 | 4 |
| | | | | No. | 8 | 14 | | | | | | | | | | 5 |
| 55,938 | 55,938 | | 34.98 | No. | 8 | 15 | | | 33 | | 23 | | 1 | | 9 | 6 |
| | | | | Yes. | 9 | 12 | 1 | 5 | 2,124 | | 1,569 | | 56 | 5 | 499 | 7 |
| | | | | No. | 8 | 12 | 1 | 1 | 7 | | 5 | | | 1 | 2 | 8 |
| [8]7,000 | 7,000 | | 15.97 | No. | 8 | 55 | | | 1 | | 1 | | | | | 9 |
| 32,200 | 29,200 | 3,000 | 19.53 | No. | 8 | 40 | 1 | | | | | | | | | 10 |
| 334,910 | 331,310 | 3,600 | 29.34 | Yes. | 20 | 55 | 1 | 4 | 308 | | 241 | 2 | 5 | 2 | 62 | 11 |
| 24,090 | 24,090 | | 23.32 | No. | 6 | 30 | 1 | | 1 | | | | 1 | | | 12 |
| 16,425 | 16,425 | | 5.54 | No. | 4 | | | | | | | | | | | 13 |
| 29,200 | 29,200 | | 19.76 | No. | 8 | 15 | 1 | | 6 | | 4 | | 1 | | 1 | 14 |
| 61,890 | 61,890 | | 23.83 | Yes. | 10 | | 1 | | 7 | | 3 | | 2 | | 2 | 15 |
| [8]12,000 | 12,000 | | 21.79 | No. | 7 | 12 | | | 2 | | 2 | | | | | 16 |
| [1]13,596 | 13,596 | | 11.30 | No. | 15 | 25 | | | 1 | | | | | | 1 | 17 |
| 23,360 | 23,360 | | 7.06 | No. | 15 | | 1 | | | | | | | | | 18 |
| 8,470 | 8,470 | | 23.38 | Yes. | 12 | | | | | | | | | | | 19 |
| 5,917 | 5,917 | | 9.48 | No. | | 4 | | | | | | | | | | 20 |
| 52,560 | 52,560 | | 17.38 | No. | 10 | | | 1 | | | | | | 1 | | 21 |
| 62,780 | 62,780 | | 19.12 | No. | 10 | 15 | | 1 | 8 | 1 | 5 | | | | 3 | 22 |
| 132,278 | 130,400 | 1,878 | 30.27 | Yes. | 8 | 40 | 1 | 1 | 1 | | | | | 1 | 1 | 23 |
| 226,831 | 222,831 | 4,000 | 16.65 | Yes. | 8 | 15 | | 5 | 100 | 1 | 46 | 1 | 18 | 3 | 36 | 24 |
| 29,200 | 29,200 | | 15.41 | No. | 8 | | | | 1 | | 1 | | | | | 25 |
| 30,110 | 29,565 | 545 | 47.06 | No. | 15 | 30 | 1 | | 3 | | | | | | 3 | 26 |
| 14,541 | 14,541 | | 13.56 | No. | 10 | 12 | | | | | | | | | | 27 |
| [9]1,121,902 | 1,118,252 | 3,650 | 26.76 | | | | 12 | 19 | 238 | 5 | 152 | 3 | 36 | 11 | 50 | |
| | | | | No. | 10 | 10 | | | | | | | | | | 1 |
| 79,280 | 79,280 | | 20.18 | Yes. | 8 | | | 1 | 4 | 1 | 3 | | 1 | | | 2 |
| | | | | No. | 8 | 12 | | 2 | 29 | | 16 | 1 | 1 | 1 | 12 | 3 |
| 10,016 | 10,016 | | 14.48 | No. | 12 | | | | | | | | | | | 4 |
| | | | | No. | 15 | 15 | 1 | | 11 | | 11 | | | | | 5 |
| | | | | Yes. | 12 | 12 | 1 | 2 | 38 | | 20 | 1 | 13 | 1 | 5 | 6 |
| 321,774 | 321,774 | | 28.10 | Yes. | 12 | 15 | 2 | 1 | 46 | | 28 | | 5 | 1 | 13 | 7 |
| [10]307,059 | 307,059 | | 34.25 | Yes. | 12 | | 1 | 2 | 71 | 1 | 50 | | 6 | 1 | 15 | 8 |
| | | | | No. | | 50 | | | 2 | | | | 2 | | | 9 |
| 98,216 | 98,216 | | 24.35 | No. | 8 | 20 | 1 | 1 | 23 | 1 | 15 | | 8 | | | 10 |
| | | | | No. | 8 | | | 1 | | | | | | 1 | | 11 |
| 14,600 | 14,600 | | 20.03 | No. | 6 | | | 2 | | | | | | 2 | | 12 |
| | | | | No. | 12 | | 1 | | | | | | | | | 13 |
| 35,000 | 35,000 | | 8.57 | No. | 12 | | 1 | 2 | 3 | | | | 1 | 1 | 3 | 14 |
| | | | | No. | 10 | | | | | | | | | | | 15 |
| 27,075 | 23,425 | 3,650 | 12.29 | Yes. | 12 | 15 | | 1 | | 1 | | | | | | 16 |
| | | | | No. | 12 | | 1 | 1 | 7 | 1 | 7 | | | | | 17 |
| 42,732 | 42,732 | | 28.34 | Yes. | 8 | 14 | | | 3 | | 2 | | | | 1 | 18 |
| | | | | No. | 8 | | | | 1 | | | | | | 1 | 19 |
| 186,150 | 186,150 | | 22.23 | No. | 8 | 12 | 1 | 1 | | | | | | 1 | | 20 |
| | | | | Yes. | 12 | | 1 | | | | | | | | | 21 |
| | | | | No. | 12 | 25 | 1 | 2 | | | | | | 2 | | 22 |

[7] For 24 companies only, and includes 3 companies operating part of year.
[8] For 3 months only.
[9] For 11 companies only.
[10] Includes figures for Interurban Railway Company.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | KANSAS. | | | | | | | | | |
| | Total for state | 7,970,581 | 6,832,064 | 1,138,517 | 18 | 61,406 | 2,417,364 | 2,417,364 | ..... | 2.83 |
| 1 | Arkansas City Street Railway | 25,240 | 25,240 | ..... | ..... | 4,589 | 12,100 | 12,100 | ..... | 2.09 |
| 2 | Atchison Railway, Light and Power | 651,947 | 533,867 | 118,080 | 1 | 59,319 | 146,000 | 146,000 | ..... | 3.66 |
| 3 | Fort Scott Consolidated Supply | 220,000 | 205,000 | 15,000 | 1 | 22,778 | 167,200 | 167,200 | ..... | 1.23 |
| 4 | Hutchinson Street Railway | 189,905 | 189,905 | ..... | ..... | 24,254 | [2]70,000 | 70,000 | ..... | 2.71 |
| 5 | Iola Electric Railroad | 566,800 | 566,800 | ..... | ..... | 68,703 | 108,700 | 108,700 | ..... | 5.21 |
| 6 | Electric Railway and Ice | 300,103 | 299,743 | 360 | 1 | 66,610 | 75,920 | 75,920 | ..... | 3.95 |
| 7 | Kansas City-Leavenworth [3] | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 8 | Pittsburg Railroad | 685,200 | 660,000 | 25,200 | 1 | 56,170 | 177,025 | 177,025 | ..... | 3.73 |
| 9 | Consolidated Street Railway | 76,222 | 76,222 | ..... | ..... | 37,181 | 36,557 | 36,557 | ..... | 2.09 |
| 10 | Topeka Railway | 3,350,164 | 2,730,287 | 619,877 | 10 | 95,365 | 864,487 | 864,487 | ..... | 3.16 |
| 11 | Wichita Railroad and Light | 1,810,000 | 1,460,000 | 350,000 | 3 | 78,919 | 732,000 | 732,000 | ..... | 1.99 |
| 12 | Union Street Railway | 95,000 | 85,000 | 10,000 | 1 | 13,600 | 27,375 | 27,375 | ..... | 3.11 |
| | KENTUCKY. | | | | | | | | | |
| | Total for state | [4]61,683,130 | 56,293,852 | 5,389,278 | 21 | 198,253 | [4]15,477,507 | 15,451,572 | 25,935 | 3.64 |
| 1 | Bowling Green Railway | 150,000 | 150,000 | ..... | ..... | 37,500 | 90,000 | 90,000 | ..... | 1.67 |
| 2 | Cincinnati, Newport and Covington | 18,621,952 | 16,264,745 | 2,357,207 | 10 | 290,442 | 3,310,345 | 3,310,300 | 45 | 4.91 |
| 3 | Frankfort and Suburban | 173,725 | 173,725 | ..... | ..... | 23,929 | 155,490 | 153,300 | 2,190 | 1.13 |
| 4 | Henderson Street Railway | 448,000 | 280,000 | 168,000 | 1 | 50,909 | 182,500 | 182,500 | ..... | 1.53 |
| 5 | Lexington Railway | 2,380,682 | 2,350,682 | 30,000 | 1 | 155,366 | 732,108 | 732,108 | ..... | 3.21 |
| 6 | Georgetown and Lexington | [6]25,000 | 25,000 | ..... | ..... | 1,911 | [6]6,000 | 6,000 | ..... | 4.17 |
| 7 | Louisville Railway | 35,659,000 | 33,158,500 | 2,500,500 | 5 | 233,511 | 9,137,604 | 9,137,604 | ..... | 3.63 |
| 8 | Louisville, Anchorage and Pewee | 541,700 | 541,700 | ..... | ..... | 29,124 | 428,700 | 405,000 | 23,700 | 1.34 |
| 9 | Kentucky and Indiana | 1,344,888 | 1,344,888 | ..... | ..... | 222,664 | 429,240 | 429,240 | ..... | 3.13 |
| 10 | Maysville Street Railroad | 309,621 | 309,621 | ..... | ..... | 72,852 | 175,200 | 175,200 | ..... | 1.77 |
| 11 | Owensboro City Railroad | [2]290,956 | 257,385 | 33,571 | 3 | 30,281 | [5]130,320 | 130,320 | ..... | 1.98 |
| 12 | Paducah City Railway | 1,737,606 | 1,437,606 | 300,000 | 1 | 89,850 | 700,000 | 700,000 | ..... | 2.05 |
| | LOUISIANA. | | | | | | | | | |
| | Total for state | 60,285,120 | 55,343,843 | 4,941,277 | 15 | 278,782 | 18,594,869 | 18,594,869 | ..... | 2.98 |
| 1 | Baton Rouge Electric and Gas | 359,770 | 359,770 | ..... | ..... | 95,939 | [2]198,400 | 198,400 | ..... | 1.81 |
| 2 | Lake Charles Street Railway | 128,160 | 128,160 | ..... | ..... | 60,739 | 61,320 | 61,320 | ..... | 2.09 |
| 3 | St. Charles Street Railroad | 5,911,900 | 5,767,900 | 144,000 | 2 | 310,603 | 2,196,588 | 2,196,588 | ..... | 2.63 |
| 4 | Orleans Railroad | 2,518,633 | 2,505,700 | 12,933 | 2 | 217,320 | 785,210 | 785,210 | ..... | 3.19 |
| 5 | New Orleans Railways | 33,089,252 | 29,465,376 | 3,623,876 | 8 | 256,221 | 10,355,381 | 10,355,381 | ..... | 2.85 |
| 6 | New Orleans and Carrollton | 16,605,765 | 15,445,297 | 1,160,468 | 3 | 434,711 | 4,472,990 | 4,472,990 | ..... | 3.45 |
| 7 | Algiers, McDonoghville and Gretna | 221,640 | 221,640 | ..... | ..... | 62,434 | 91,980 | 91,980 | ..... | 2.41 |
| 8 | Shreveport Belt Railway | 1,450,000 | 1,450,000 | ..... | ..... | 164,773 | 433,000 | 433,000 | ..... | 3.35 |
| | MAINE. | | | | | | | | | |
| | Total for state | [9]27,506,582 | 25,495,164 | 2,011,418 | 14 | 76,897 | [9]6,815,671 | 6,389,750 | 425,921 | 3.99 |
| 1 | Augusta, Winthrop and Gardiner | 1,192,748 | 1,192,748 | ..... | ..... | 90,980 | 329,588 | 329,588 | ..... | 3.62 |
| 2 | Public Works | 1,453,143 | 1,208,216 | 244,927 | 1 | 111,872 | 346,574 | 346,574 | ..... | 3.49 |
| 3 | Penobscot Central Railway | 295,548 | 295,548 | ..... | ..... | 10,712 | 58,971 | 44,228 | 14,743 | 6.68 |
| 4 | Bangor, Orono and Old Town | 1,152,848 | 1,152,848 | ..... | ..... | 69,033 | 314,376 | 308,839 | 5,537 | 3.73 |
| 5 | Bangor, Hampden and Winterport | 435,721 | 435,721 | ..... | ..... | 62,069 | 96,552 | 96,052 | 500 | 4.54 |
| 6 | Biddeford and Saco | 728,909 | 728,909 | ..... | ..... | 89,437 | 309,106 | 309,106 | ..... | 2.36 |
| 7 | Calais Street Railway | 566,514 | 546,760 | 19,754 | 2 | 77,008 | 183,960 | 182,960 | 1,000 | 2.99 |
| 8 | Benton and Fairfield | 52,282 | 52,282 | ..... | ..... | 11,964 | 204,988 | 25,564 | 179,424 | 2.05 |
| 9 | Fryeburg Horse Railway | 14,600 | 14,600 | ..... | ..... | 4,867 | 6,500 | 6,500 | ..... | 2.25 |
| 10 | Atlantic Shore Line | 92,758 | 92,758 | ..... | ..... | 58,708 | 26,064 | 26,064 | ..... | 3.56 |
| 11 | Lewiston, Brunswick and Bath | 4,436,152 | 4,237,065 | 199,087 | 2 | 75,419 | 1,083,822 | 1,049,697 | 34,125 | 4.04 |
| 12 | Norway and Paris | 139,909 | 139,909 | ..... | ..... | 65,378 | 44,730 | 44,730 | ..... | 3.13 |
| 13 | Portland Railroad | 12,386,706 | 10,839,056 | 1,547,650 | 9 | 120,931 | 2,551,203 | 2,551,203 | ..... | 4.25 |
| 14 | Portsmouth, Kittery and York | 1,506,611 | 1,506,611 | ..... | ..... | 95,962 | 345,415 | 316,195 | 29,220 | 4.76 |
| 15 | Rockland, Thomaston and Camden | 1,370,129 | 1,370,129 | ..... | ..... | 63,315 | 369,742 | 218,242 | 151,500 | 6.28 |
| 16 | Sanford and Cape Porpoise | 845,157 | 845,157 | ..... | ..... | 33,287 | 305,169 | 305,169 | ..... | 2.77 |
| 17 | Skowhegan and Norridgewock Railway and Power | [11]62,296 | 62,296 | ..... | ..... | 10,649 | [11]23,344 | 22,746 | 598 | 2.74 |
| 18 | Somerset Traction | 164,647 | 164,647 | ..... | ..... | 12,985 | 100,949 | 91,675 | 9,274 | 1.80 |
| 19 | Waterville and Fairfield Railway and Light | 609,904 | 609,904 | ..... | ..... | 126,536 | 114,618 | 114,618 | ..... | 5.32 |
| | MARYLAND. | | | | | | | | | |
| | Total for state | [4]135,625,650 | 99,989,552 | 35,636,098 | 144 | 228,370 | [4]24,832,662 | 24,238,490 | 594,172 | 4.13 |
| 1 | United Railways | 132,106,412 | 96,763,878 | 35,342,534 | 142 | 265,019 | 23,876,837 | 23,330,292 | 546,545 | 4.15 |
| 2 | Cumberland Electric Railway | 1,266,883 | 1,066,883 | 200,000 | 1 | 150,903 | 219,000 | 219,000 | ..... | 4.87 |
| 3 | Frederick and Middletown | 280,933 | 280,933 | ..... | ..... | 19,137 | 85,908 | 40,000 | 45,908 | 7.02 |
| 4 | Kensington Railway | [14]38,966 | 38,966 | ..... | ..... | 15,402 | [14]9,887 | 9,887 | ..... | 3.94 |
| 5 | Cumberland and Westernport | [14]206,823 | 206,823 | ..... | ..... | 23,719 | [14]26,740 | [2]26,740 | ..... | 7.73 |
| 6 | Hagerstown Railway | 736,311 | 642,747 | 93,564 | 1 | 46,916 | 310,688 | 310,688 | ..... | 2.07 |
| 7 | Baltimore and Washington | 45,600 | 45,600 | ..... | ..... | 22,800 | 15,000 | 15,000 | ..... | 3.04 |
| 8 | Washington and Glen Echo | 117,457 | 117,457 | ..... | ..... | 10,134 | 63,771 | 63,689 | 82 | 1.84 |
| 9 | Washington and Rockville | 621,803 | 621,803 | ..... | ..... | 57,046 | 151,291 | 149,716 | 1,575 | 4.15 |
| 10 | Washington, Woodside and Forest Glen | 204,462 | 204,462 | ..... | ..... | 75,170 | 73,540 | 73,478 | 62 | 2.78 |
| | MASSACHUSETTS. | | | | | | | | | |
| | Total for state | [15]605,258,939 | 461,745,615 | 143,513,324 | 250 | 182,822 | [15]101,373,975 | 100,115,307 | 1,258,668 | 4.61 |
| 1 | Amherst and Sunderland | 438,958 | 431,435 | 7,523 | 1 | 29,014 | 175,658 | 175,658 | ..... | 2.46 |
| 2 | Interstate Consolidated | 3,504,931 | 3,504,931 | ..... | ..... | 126,806 | 744,982 | 744,982 | ..... | 4.70 |
| 3 | Lexington and Boston | 2,908,985 | 2,691,301 | 217,684 | 10 | 72,659 | 911,692 | 911,692 | ..... | 2.95 |
| 4 | Old Colony Street Railway | 53,653,181 | 46,321,681 | 7,331,500 | 36 | 122,137 | 9,997,394 | 9,296,467 | 700,927 | 4.98 |

[1] For 8 companies only.
[2] Estimated.
[3] This company failed to make a report.
[4] Includes 2 companies operating part of year.
[5] For 9 companies only, and includes 1 company operating part of year
[6] For 1½ months only.
[7] Not reported.
[8] For 6 months only.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | | | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | | |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | |
| [1] 203,390 | 203,390 | ..... | 18.82 | ..... | ..... | ..... | 3 | 1 | 33 | ..... | 8 | 1 | 11 | ..... | 14 | |
| 2,920 | 2,920 | ..... | 8.64 | No..... | 6 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 34,675 | 34,675 | ..... | 15.40 | No..... | 8 | 8 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 |
| 18,500 | 18,500 | ..... | 11.08 | No..... | 12 | 12 | 1 | ..... | 2 | ..... | ..... | ..... | ..... | ..... | 2 | 3 |
| ..... | ..... | ..... | ..... | No..... | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 |
| 13,423 | 13,423 | ..... | 42.23 | No..... | 10 | 25 | 1 | ..... | 2 | ..... | ..... | ..... | 1 | ..... | 1 | 5 |
| 8,760 | 8,760 | ..... | 34.22 | No..... | 10 | 25 | ..... | 1 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 6 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| 27,010 | 27,010 | ..... | 24.44 | No..... | 15 | 15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 |
| 9,855 | 9,855 | ..... | 7.73 | No..... | 6 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| ..... | ..... | ..... | ..... | Yes.... | 8 | 25 | ..... | ..... | 29 | ..... | 8 | ..... | 10 | ..... | 11 | 10 |
| 88,247 | 88,247 | ..... | 16.54 | No..... | 12 | 12 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 11 |
| ..... | ..... | ..... | ..... | No..... | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12 |
| [8] 3,006,531 | 3,003,976 | 2,555 | 13.21 | ..... | ..... | ..... | 2 | 9 | 51 | 1 | 38 | 1 | 1 | 7 | 12 | |
| 6,570 | 6,570 | ..... | 22.83 | No..... | 8 | 15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| ..... | ..... | ..... | ..... | Yes.... | 10 | 10 | ..... | 2 | 20 | ..... | 20 | ..... | ..... | 2 | ..... | 2 |
| 5,840 | 5,110 | 730 | 34.00 | No..... | 6 | 8 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| 29,200 | 29,200 | ..... | 9.59 | No..... | 12 | 15 | ..... | 1 | 5 | ..... | ..... | ..... | 1 | 1 | 4 | 4 |
| 101,088 | 101,088 | ..... | 23.25 | No..... | 6 | 6 | ..... | ..... | 15 | ..... | 14 | ..... | ..... | ..... | 1 | 5 |
| ..... | ..... | ..... | ..... | No..... | 8 | 20 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 |
| 2,628,000 | 2,628,000 | ..... | 12.62 | Yes.... | 12 | 20 | ..... | (7) | (7) | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| 36,825 | 35,000 | 1,825 | 15.48 | No..... | 10 | 45 | ..... | 2 | 1 | ..... | ..... | 1 | ..... | 1 | 1 | 8 |
| 94,528 | 94,528 | ..... | 14.23 | No..... | 12 | 12 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| ..... | ..... | ..... | ..... | No..... | 8 | 8 | ..... | 4 | ..... | 1 | ..... | ..... | ..... | 3 | ..... | 10 |
| [9] 14,480 | 14,480 | ..... | 17.78 | No..... | 10 | 15 | ..... | ..... | 6 | ..... | 4 | ..... | ..... | ..... | 2 | 11 |
| 90,000 | 90,000 | ..... | 15.97 | No..... | 8 | 10 | 1 | ..... | 4 | ..... | ..... | ..... | ..... | ..... | 4 | 12 |
| 2,025,648 | 2,025,648 | ..... | 27.32 | ..... | ..... | ..... | 4 | 27 | 1,230 | 1 | 865 | ..... | 64 | 26 | 301 | |
| 22,889 | 22,889 | ..... | 15.72 | No..... | 12 | ..... | 2 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 10,220 | 10,220 | ..... | 12.54 | No..... | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 |
| 235,872 | 235,872 | ..... | 24.45 | No..... | 10 | ..... | ..... | 1 | 24 | ..... | 14 | ..... | 3 | 1 | 7 | 3 |
| 93,072 | 93,072 | ..... | 26.92 | No..... | 15 | ..... | ..... | 1 | 8 | ..... | 5 | ..... | 1 | 1 | 2 | 4 |
| 1,119,396 | 1,119,396 | ..... | 26.32 | Yes.... | 15 | ..... | 1 | 16 | 1,151 | ..... | 830 | ..... | 59 | 16 | 262 | 5 |
| 467,784 | 467,784 | ..... | 33.02 | No..... | 15 | ..... | 1 | 6 | 42 | 1 | 16 | ..... | ..... | 5 | 26 | 6 |
| 18,615 | 18,615 | ..... | 11.91 | No..... | 6 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| 57,800 | 57,800 | ..... | 25.09 | No..... | 12 | ..... | ..... | 3 | 5 | ..... | ..... | ..... | 1 | 3 | 4 | 8 |
| [10] 456,023 | 379,444 | 76,579 | 32.97 | ..... | ..... | ..... | 11 | 4 | 26 | 1 | 26 | ..... | ..... | 3 | ..... | |
| ..... | ..... | ..... | ..... | Yes.... | 6 | 9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 55,440 | 55,440 | ..... | 21.79 | No..... | 8 | ..... | ..... | ..... | 3 | ..... | 3 | ..... | ..... | ..... | ..... | 2 |
| 13,140 | 8,760 | 4,380 | 33.74 | Yes.... | 6 | 20 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| 31,095 | 29,988 | 1,107 | 38.44 | No..... | 8 | ..... | ..... | ..... | 6 | ..... | 6 | ..... | ..... | ..... | ..... | 4 |
| 12,522 | 10,962 | 1,560 | 39.75 | Yes.... | 8 | 12 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 |
| 48,545 | 48,545 | ..... | 15.02 | No..... | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 |
| 19,876 | 19,710 | 166 | 27.74 | No..... | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| 41,245 | 6,205 | 35,040 | 8.43 | Yes.... | 12 | 20 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 |
| ..... | ..... | ..... | ..... | No..... | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| ..... | ..... | ..... | ..... | No..... | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 10 |
| 96,730 | 91,980 | 3,750 | 46.07 | No..... | 7 | 15 | 2 | 1 | 1 | ..... | 1 | ..... | ..... | 1 | ..... | 11 |
| 6,205 | 6,205 | ..... | 22.55 | Yes.... | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12 |
| ..... | ..... | ..... | ..... | Yes.... | 10 | 15 | 3 | 1 | 16 | 1 | 16 | ..... | ..... | ..... | ..... | 13 |
| 34,367 | 29,445 | 4,922 | 51.17 | Yes.... | ..... | 13 | ..... | 2 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 14 |
| 70,115 | 46,355 | 23,760 | 29.56 | Yes.... | 6 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 15 |
| ..... | ..... | ..... | ..... | Yes.... | 6 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 16 |
| [11] 5,869 | 5,800 | 69 | 10.74 | Yes.... | 7 | 12 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 17 |
| 9,464 | 7,639 | 1,825 | 21.55 | Yes.... | 8 | 20 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 18 |
| 12,410 | 12,410 | ..... | 49.15 | No..... | 9 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 19 |
| [12] 67,517 | 67,283 | 234 | 26.65 | ..... | ..... | ..... | 6 | ..... | 1,335 | ..... | 700 | ..... | ..... | ..... | 635 | |
| ..... | ..... | ..... | ..... | Yes.... | 12 | 14 | 3 | ..... | [13] 1,323 | ..... | [13] 688 | ..... | ..... | ..... | [13] 635 | 1 |
| ..... | ..... | ..... | ..... | Yes.... | 6 | 8 | 1 | ..... | 2 | ..... | 2 | ..... | ..... | ..... | ..... | 2 |
| ..... | ..... | ..... | ..... | Yes.... | 6 | 12 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| ..... | ..... | ..... | ..... | No..... | 8 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 |
| [14] 2,674 | 2,674 | ..... | 77.35 | No..... | 5 | 12 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 |
| 42,705 | 42,705 | ..... | 15.05 | No..... | 12 | 14 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 |
| ..... | ..... | ..... | ..... | No..... | 8 | 15 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| 5,942 | 5,929 | 13 | 19.81 | No..... | 12 | 15 | ..... | ..... | 1 | ..... | 1 | ..... | ..... | ..... | ..... | 8 |
| 9,393 | 9,183 | 210 | 67.71 | No..... | 12 | 15 | ..... | ..... | 6 | ..... | 6 | ..... | ..... | ..... | ..... | 9 |
| 6,803 | 6,792 | 11 | 30.10 | No..... | ..... | 15 | ..... | ..... | 3 | ..... | 3 | ..... | ..... | ..... | ..... | 10 |
| [16] 11,287,251 | 11,244,744 | 42,507 | 38.11 | ..... | ..... | ..... | 31 | 82 | 4,142 | 18 | 2,854 | 9 | 238 | 55 | 1,050 | |
| 21,900 | 21,900 | ..... | 19.70 | Yes.... | 10 | 15 | ..... | 1 | 2 | ..... | 1 | ..... | ..... | 1 | 1 | 1 |
| ..... | ..... | ..... | ..... | Yes.... | 8 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 2 |
| ..... | ..... | ..... | ..... | No..... | 10 | ..... | ..... | 2 | 8 | 1 | 5 | ..... | ..... | 1 | 3 | 3 |
| 1,013,309 | 1,013,309 | ..... | 45.71 | Yes.... | 8 | 28 | 5 | 13 | 445 | 4 | 281 | 1 | 69 | 8 | 95 | 4 |

[9] Includes 1 company operating part of year.
[10] For 14 companies only, and includes 1 company operating part of year.
[11] For 10 months only.
[12] For 5 companies only, and includes 1 company operating part of year.
[13] Persons killed not reported separately.
[14] For 2½ months only.
[15] Includes 11 companies operating part of year.
[16] For 46 companies only, and includes 7 companies operating part of year.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | MASSACHUSETTS—Continued. | | | | | | | | | |
| 5 | Boston and Northern | 76,572,458 | 69,299,473 | 7,272,985 | 61 | 157,363 | 14,419,352 | 14,139,780 | 279,572 | 4.90 |
| 6 | Boston Elevated Railway | 337,484,811 | 222,484,811 | 115,000,000 | 38 | 549,427 | 45,999,999 | 45,772,836 | 227,163 | 4.86 |
| 7 | Lowell and Boston | 272,776 | 272,776 | ..... | ..... | 27,891 | 153,061 | 153,061 | ..... | 1.78 |
| 8 | New York, New Haven and Hartford Railroad | [1] 1,039,810 | 1,039,810 | ..... | ..... | 26,438 | [1] 325,894 | 323,032 | 2,802 | 3.22 |
| 9 | Blue Hill Street Railway | 561,805 | 493,333 | 68,472 | 1 | 43,658 | 154,840 | 154,840 | ..... | 3.19 |
| 10 | Hoosac Valley | 2,204,066 | 2,204,066 | ..... | ..... | 117,864 | 586,771 | 586,771 | ..... | 3.76 |
| 11 | Concord, Maynard and Hudson | 952,054 | 927,384 | 24,670 | 2 | 69,105 | 264,612 | 264,612 | ..... | 3.50 |
| 12 | Conway Electric Railway | 58,702 | 58,702 | ..... | ..... | 9,244 | 29,504 | 29,504 | ..... | 1.99 |
| 13 | Cottage City and Edgartown | [2] 82,919 | 82,919 | ..... | ..... | 15,159 | [2] 14,862 | 14,862 | ..... | 5.58 |
| 14 | Norfolk Western Railway | 510,761 | 510,761 | ..... | ..... | 54,049 | 179,753 | 179,753 | ..... | 2.84 |
| 15 | Greenfield and Deerfield | [3] 53,626 | 53,626 | ..... | ..... | 6,788 | [3] 29,611 | 29,611 | ..... | 1.81 |
| 16 | Providence and Fall River | 859,039 | 858,539 | 500 | 1 | 68,519 | 219,564 | 219,564 | ..... | 3.91 |
| 17 | Dartmouth and Westport | 2,935,474 | 2,623,831 | 311,643 | 2 | 131,323 | 361,388 | 361,388 | ..... | 7.26 |
| 18 | Fitchburg and Leominster | 4,442,120 | 3,765,154 | 676,966 | 3 | 118,850 | 872,682 | 859,890 | 12,792 | 4.38 |
| 19 | Framingham Union Street Railway | 902,838 | 782,936 | 119,902 | 2 | 112,168 | 148,234 | 148,234 | ..... | 5.28 |
| 20 | Gardner, Westminster and Fitchburg | 1,099,752 | 1,098,990 | 762 | 1 | 68,473 | 284,716 | 284,716 | ..... | 3.86 |
| 21 | Greenfield and Turners Falls | 1,050,859 | 1,050,859 | ..... | ..... | 69,732 | 224,770 | 224,770 | ..... | 4.68 |
| 22 | Haverhill and Southern New Hampshire | [2] 210,671 | 210,671 | ..... | ..... | 34,764 | [2] 37,215 | 37,215 | ..... | 5.66 |
| 23 | Haverhill, Georgetown and Danvers | 601,597 | 601,597 | ..... | ..... | 91,987 | 145,316 | 145,316 | ..... | 4.14 |
| 24 | Haverhill and Amesbury | 2,458,772 | 2,328,243 | 130,529 | 3 | 78,897 | 511,897 | 511,897 | ..... | 4.55 |
| 25 | Holyoke Street Railway | 6,832,568 | 6,336,300 | 496,268 | 8 | 144,995 | 1,495,000 | 1,495,000 | ..... | 4.24 |
| 26 | Lawrence and Reading | 834,268 | 834,268 | ..... | ..... | 64,672 | 268,113 | 265,615 | 2,498 | 3.14 |
| 27 | Lawrence and Methuen | [4] 201,630 | 201,630 | ..... | ..... | 30,139 | [4] 28,490 | 28,490 | ..... | 7.08 |
| 28 | Middleton and Danvers | 327,699 | 327,699 | ..... | ..... | 13,497 | 74,318 | 74,118 | 200 | 4.42 |
| 29 | Norfolk and Bristol | [5] 823,989 | 803,412 | 20,577 | 2 | 38,167 | [5] 321,123 | 321,123 | ..... | 2.50 |
| 30 | Marlboro Street Railway | 1,470,521 | 1,283,811 | 186,710 | 3 | 81,254 | 302,987 | 302,987 | ..... | 4.24 |
| 31 | Marlboro and Westboro | 672,614 | 672,614 | ..... | ..... | 48,529 | 167,527 | 167,527 | ..... | 4.01 |
| 32 | Medfield and Medway | 477,346 | 477,346 | ..... | ..... | 42,431 | 203,782 | 203,782 | ..... | 2.34 |
| 33 | Middleboro, Wareham and Buzzards Bay | 860,850 | 860,850 | ..... | ..... | 28,946 | 347,319 | 347,319 | ..... | 2.48 |
| 34 | Milford, Attleboro and Woonsocket | 1,492,206 | 1,484,950 | 7,256 | 1 | 48,354 | 552,800 | 552,800 | ..... | 2.69 |
| 35 | Milford and Uxbridge | 2,830,521 | 2,830,521 | ..... | ..... | 78,582 | 713,139 | 713,139 | ..... | 3.97 |
| 36 | Natick and Cochituate | 1,611,446 | 1,611,446 | ..... | ..... | 85,715 | 461,879 | 461,879 | ..... | 3.49 |
| 37 | South Middlesex Street Railway | 1,445,338 | 1,445,338 | ..... | ..... | 73,479 | 381,289 | 379,489 | 1,800 | 3.81 |
| 38 | Union Street Railway | 7,610,228 | 6,160,597 | 1,449,631 | 5 | 201,064 | 1,334,311 | 1,334,311 | ..... | 4.62 |
| 39 | New Bedford and Onset | 966,998 | 966,998 | ..... | ..... | 44,236 | 239,372 | 238,388 | 984 | 4.06 |
| 40 | Citizens Electric Railway | 2,156,163 | 1,927,661 | 228,502 | 12 | 81,508 | 399,285 | 399,285 | ..... | 4.83 |
| 41 | Georgetown, Rowley and Ipswich | 898,678 | 862,678 | 36,000 | 1 | 45,912 | 267,856 | 267,856 | ..... | 3.22 |
| 42 | Commonwealth Avenue | 1,738,401 | 1,547,483 | 190,918 | 5 | 111,170 | 423,085 | 423,085 | ..... | 3.66 |
| 43 | Wellesley and Boston | 1,387,072 | 963,098 | 423,974 | 3 | 111,212 | 271,826 | 271,826 | ..... | 3.54 |
| 44 | Newton and Boston | 1,721,650 | 970,693 | 750,957 | 3 | 63,777 | 492,502 | 492,502 | ..... | 1.97 |
| 45 | Newton Street Railway | 2,849,316 | 2,213,223 | [6] 636,093 | 5 | 114,319 | 564,475 | 564,475 | ..... | 3.92 |
| 46 | Northampton Street Railway | 3,176,219 | 2,848,901 | 327,318 | 8 | 108,488 | 767,328 | 737,398 | 29,930 | 3.86 |
| 47 | Northampton and Amherst | 1,009,895 | 1,009,895 | ..... | ..... | 68,052 | 292,045 | 292,045 | ..... | 3.46 |
| 48 | Haverhill and Andover | [2] 2,118 | 2,118 | ..... | ..... | 1,177 | [2] 14,125 | 14,125 | ..... | .15 |
| 49 | Norton and Taunton | 940,075 | 940,075 | ..... | ..... | 31,087 | 350,499 | 350,499 | ..... | 2.68 |
| 50 | Athol and Orange | 770,054 | 770,054 | ..... | ..... | 105,199 | 140,368 | 140,368 | ..... | 5.49 |
| 51 | Pittsfield Electric | 2,237,793 | 2,237,793 | ..... | ..... | 105,656 | 560,147 | 560,147 | ..... | 4.00 |
| 52 | Plymouth and Sandwich | 69,441 | 69,441 | ..... | ..... | 10,918 | 39,927 | 39,927 | ..... | 1.74 |
| 53 | Brockton and Plymouth | 1,835,693 | 1,799,709 | 35,984 | 1 | 75,618 | 441,606 | 441,606 | ..... | 4.08 |
| 54 | Norwood, Canton and Sharon | 159,491 | 159,491 | ..... | ..... | 25,933 | 89,704 | 89,704 | ..... | 1.78 |
| 55 | Shelburne Falls and Coleraine | 166,137 | 166,137 | ..... | ..... | 23,700 | 54,254 | 54,254 | ..... | 3.06 |
| 56 | Southbridge and Sturbridge | 619,384 | 619,384 | ..... | ..... | 77,326 | 148,006 | 148,006 | ..... | 4.18 |
| 57 | Hampshire Street Railway | [2] 60,335 | 60,335 | ..... | ..... | 13,202 | [2] 21,075 | 21,075 | ..... | 2.86 |
| 58 | Springfield Street Railway | 19,278,987 | 16,878,905 | 2,400,082 | 24 | 183,407 | 4,342,075 | 4,342,075 | ..... | 3.89 |
| 59 | Springfield and Eastern | 1,975,227 | 1,900,021 | 75,206 | 1 | 62,378 | 562,742 | 562,742 | ..... | 3.38 |
| 60 | Stoughton and Randolph | 147,541 | 147,541 | ..... | ..... | 17,884 | 64,307 | 64,307 | ..... | 2.29 |
| 61 | East Taunton Street Railway | 694,450 | 694,450 | ..... | ..... | 60,810 | 157,335 | 157,335 | ..... | 4.41 |
| 62 | Bristol County | 1,010,959 | 990,959 | 20,000 | 2 | 57,083 | 387,425 | 387,425 | ..... | 2.56 |
| 63 | Templeton Street Railway | 749,045 | 749,045 | ..... | ..... | 40,731 | 246,397 | 246,397 | ..... | 3.04 |
| 64 | Marthas Vineyard | 21,742 | 21,742 | ..... | ..... | 19,765 | 5,807 | 5,807 | ..... | 3.74 |
| 65 | Upton Street Railway | [7] 39,532 | 39,532 | ..... | ..... | 14,862 | [7] 17,435 | 17,435 | ..... | 2.27 |
| 66 | Reading, Wakefield and Lynnfield | [8] 33,057 | 33,057 | ..... | ..... | 8,043 | [8] 13,734 | 13,734 | ..... | 2.41 |
| 67 | Hampshire and Worcester | 431,604 | 431,604 | ..... | ..... | 35,611 | 137,450 | 137,450 | ..... | 3.14 |
| 68 | Warren, Brookfield and Spencer | 1,257,837 | 1,257,837 | ..... | ..... | 62,579 | 363,328 | 363,328 | ..... | 3.46 |
| 69 | Webster and Dudley | 582,559 | 545,248 | 37,311 | 3 | 89,532 | 139,249 | 139,249 | ..... | 3.92 |
| 70 | Woronoco Street Railway | 1,510,731 | 1,288,316 | 222,415 | 1 | 105,169 | 398,875 | 398,875 | ..... | 3.23 |
| 71 | Linwood Street Railway | 200,655 | 200,655 | ..... | ..... | 105,608 | 35,767 | 35,767 | ..... | 5.61 |
| 72 | Worcester Consolidated | 29,327,285 | 24,522,299 | 4,804,986 | 1 | 185,116 | 4,769,386 | 4,769,386 | ..... | 5.14 |
| 73 | Worcester and Blackstone Valley | 1,094,724 | 1,094,724 | ..... | ..... | 62,591 | 286,206 | 286,206 | ..... | 3.82 |
| 74 | Worcester and Southbridge | [9] 798,012 | 798,012 | ..... | ..... | 30,634 | [9] 111,501 | 111,501 | ..... | 7.16 |
| 75 | Worcester and Webster | 987,890 | 987,890 | ..... | ..... | 55,189 | 311,687 | 311,687 | ..... | 3.17 |
| | MICHIGAN. | | | | | | | | | |
| | Total for state | [10] 140,440,783 | 113,916,992 | 26,523,791 | 116 | 111,376 | [10] 33,046,839 | 32,333,464 | 713,375 | 3.52 |
| 1 | Adrian Street Railway | 259,891 | 259,891 | ..... | ..... | 64,013 | 100,000 | 100,000 | ..... | 2.60 |
| 2 | Bay Cities Consolidated | 2,602,050 | 1,986,982 | 615,068 | 1 | 85,278 | 921,084 | 921,084 | ..... | 2.16 |
| 3 | Benton Harbor and St. Joseph | 1,198,826 | 1,198,826 | ..... | ..... | 114,174 | 337,000 | 337,000 | ..... | 3.56 |
| 4 | Detroit United Railway | 92,025,136 | 71,891,137 | 20,133,999 | 76 | 188,542 | 18,016,870 | 17,835,540 | 181,330 | 4.03 |
| 5 | Detroit and Port Huron Shore Line | 3,251,522 | 3,032,522 | 219,000 | 5 | 22,909 | 1,798,802 | 1,727,802 | 71,000 | 1.76 |
| 6 | Detroit, Ypsilanti, Ann Arbor and Jackson | 1,944,061 | 1,944,061 | ..... | ..... | 21,265 | 1,590,601 | 1,490,724 | 99,877 | 1.30 |
| 7 | Escanaba Electric Railway | [3] 608,800 | 602,800 | 6,000 | 1 | 79,212 | [3] 175,104 | 173,584 | 1,520 | 3.47 |
| 8 | Grand Rapids Railway | 16,772,587 | 12,806,529 | 3,966,058 | 17 | 229,261 | 3,020,127 | 2,991,835 | 28,292 | 4.28 |
| 9 | Grand Rapids, Grand Haven and Muskegon | [12] 590,081 | 590,081 | ..... | ..... | 11,212 | [12] 507,881 | 439,171 | 68,710 | 1.34 |
| 10 | Grand Rapids, Holland and Lake Michigan | 860,000 | 860,000 | ..... | ..... | 12,464 | 860,712 | 722,712 | 138,000 | 1.19 |
| 11 | Houghton County Street Railway | [12] 3,182,408 | 3,132,249 | 50,159 | 1 | 141,347 | [12] 564,136 | 564,136 | ..... | 5.55 |
| 12 | Twin City General Electric | 398,410 | 398,410 | ..... | ..... | 86,611 | 30,660 | 30,660 | ..... | 12.99 |
| 13 | Negaunee and Ishpeming | 602,980 | 602,980 | ..... | ..... | 128,567 | 91,600 | 91,600 | ..... | 6.58 |
| 14 | Jackson and Suburban Traction | 1,758,039 | 1,504,388 | 253,651 | 3 | 72,816 | 546,130 | 546,130 | ..... | 2.75 |
| 15 | Michigan Traction | 4,023,997 | 4,023,997 | ..... | ..... | 91,872 | 1,094,462 | 1,094,462 | ..... | 3.68 |
| 16 | Lansing City Electric | 1,068,170 | 854,540 | 213,630 | 2 | 108,170 | 346,750 | 346,750 | ..... | 2.46 |
| 17 | Manistee, Filer City and Eastlake | [13] 840,000 | 775,000 | 65,000 | 1 | 51,667 | [13] 260,000 | 260,000 | ..... | 2.98 |

[1] For 6½ months only.
[2] For 3 months only.
[3] For 10 months only.
[4] For 1½ months only.
[5] For 10½ months only.
[6] 2½-cent transfers.
[7] For 6 months only.
[8] For 2 months only.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | | Number. |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | |
| 1,559,050 | 1,559,050 | | 44.45 | Yes | 8 | 28 | 4 | 12 | 729 | 2 | 541 | | 54 | 10 | 134 | 5 |
| 5,990,000 | 5,950,000 | 40,000 | 37.39 | Yes | 7 | 12 | | 21 | 2,095 | 6 | 1,412 | 4 | 61 | 11 | 622 | 6 |
| 13,102 | 13,102 | | 20.82 | No | 8 | 20 | | | 4 | | 3 | | 1 | | | 7 |
| | | | | No | | | | | | | | | | | | 8 |
| 18,054 | 18,054 | | 27.33 | Yes | 15 | | | | 3 | | 3 | | | | | 9 |
| 56,640 | 56,640 | | 38.91 | No | 10 | 15 | 1 | 2 | | | | 1 | | 1 | | 10 |
| 23,000 | 23,000 | | 40.32 | No | 12 | 15 | | | 3 | | 3 | | | | | 11 |
| 8,670 | 8,670 | | 6.77 | Yes | 10 | 10 | | | | | | | | | | 12 |
| [2]1,204 | 1,204 | | 68.87 | No | 9 | | | | | | | | | | | 13 |
| 16,445 | 16,445 | | 31.06 | No | 12 | | | | 2 | | 1 | | | | 1 | 14 |
| [3]5,210 | 5,210 | | 10.29 | No | 10 | 10 | | | | | | | | | | 15 |
| | | | | Yes | 21 | 30 | | | 1 | | 1 | | | | | 16 |
| | | | | Yes | 8 | 12 | 1 | | 9 | | 5 | | 1 | | 3 | 17 |
| 106,377 | 104,270 | 2,107 | 36.11 | No | 10 | 10 | 1 | | 50 | | 41 | | | | 9 | 18 |
| 14,823 | 14,823 | | 52.82 | Yes | 8 | 15 | | 1 | 2 | | 1 | | | 1 | 1 | 19 |
| 32,320 | 32,320 | | 34.00 | No | 10 | 10 | 1 | | 19 | | 12 | | 3 | | 4 | 20 |
| 45,720 | 45,720 | | 22.98 | Yes | 10 | 10 | 1 | | 6 | | 6 | | | | | 21 |
| | | | | No | 8 | 15 | | | | | | | | | | 22 |
| | | | | No | 8 | 15 | | | 3 | | | | 2 | | 1 | 23 |
| 62,000 | 62,000 | | 37.55 | Yes | 7 | 15 | | | 21 | | 15 | | 3 | | 3 | 24 |
| 166,331 | 166,331 | | 38.09 | Yes | 8 | 15 | 2 | 1 | 26 | 1 | 25 | | 1 | | | 25 |
| 18,451 | 18,451 | | 45.22 | No | 12 | 25 | | | 1 | | | | | | 1 | 26 |
| | | | | No | 8 | 25 | | | | | | | | | | 27 |
| 6,668 | 6,668 | | 49.15 | No | 10 | 28 | | | | | | | | | | 28 |
| [5]29,528 | 29,528 | | 27.21 | No | 8 | 12 | | | 9 | | 6 | | 3 | | | 29 |
| 30,298 | 30,298 | | 42.37 | No | 10 | 15 | | 1 | 144 | | 139 | 1 | 2 | | 3 | 30 |
| | | | | No | 12 | 15 | 1 | | 1 | | 1 | | | | | 31 |
| 19,005 | 19,005 | | 25.12 | No | 8 | 12 | | | 4 | | 2 | | | | 2 | 32 |
| | | | | No | | 20 | | 2 | 1 | | | | | 2 | 1 | 33 |
| 26,812 | 26,812 | | 55.38 | No | | 18 | 1 | | 4 | | 1 | | 2 | | 1 | 34 |
| 86,870 | 86,870 | | 32.58 | Yes | 8 | 15 | 1 | 1 | 13 | | 9 | | 2 | 1 | 2 | 35 |
| 40,808 | 40,808 | | 39.49 | Yes | 8 | 12 | | | | | | | | | | 36 |
| 40,785 | 40,785 | | 35.44 | Yes | 8 | 12 | 1 | | 12 | | 6 | | 3 | | 3 | 37 |
| | | | | Yes | 8 | 12 | | 3 | 21 | 1 | 13 | | 2 | 2 | 6 | 38 |
| | | | | No | 8 | 16 | | | 6 | | 6 | | | | | 39 |
| 43,200 | 43,200 | | 44.62 | Yes | 8 | 16 | 1 | 1 | 11 | | 8 | | 1 | 1 | 2 | 40 |
| | | | | Yes | 8 | 12 | | | 3 | | 2 | | | | 1 | 41 |
| | | | | No | 8 | | | | 12 | | 11 | | 1 | | | 42 |
| | | | | No | 8 | | | | 4 | | 2 | | | | 2 | 43 |
| | | | | No | 8 | | | 2 | 22 | 1 | 16 | | | 1 | 6 | 44 |
| | | | | No | 8 | | | | 17 | | 12 | | | | 5 | 45 |
| 74,281 | 73,881 | 400 | 38.56 | Yes | 10 | 15 | 1 | | 39 | | 35 | | 2 | | 2 | 46 |
| 32,850 | 32,850 | | 30.74 | Yes | 12 | 12 | | | 4 | | | | | | 4 | 47 |
| [2]1,887 | 1,887 | | 1.12 | No | | 28 | | | | | | | | | | 48 |
| | | | | No | 8 | 12 | | 3 | 1 | 1 | | | | 2 | 1 | 49 |
| 20,390 | 20,390 | | 37.77 | No | 6 | 10 | 1 | | 2 | | | | | | 2 | 50 |
| 54,800 | 54,800 | | 40.84 | No | 10 | 15 | | 1 | 11 | | | | 2 | 1 | 9 | 51 |
| | | | | No | 12 | 12 | | | | | | | | | | 52 |
| | | | | Yes | 10 | 15 | 1 | | 11 | | 9 | | | | 2 | 53 |
| | | | | No | 12 | 12 | | | 2 | | 2 | | | | | 54 |
| 8,840 | 8,840 | | 18.79 | Yes | 10 | 15 | | | 1 | | 1 | | | | | 55 |
| 18,900 | 18,900 | | 32.77 | Yes | 10 | 15 | 1 | | | | | | | | | 56 |
| [2]2,900 | 2,900 | | 20.81 | No | | 10 | | | 1 | | | | 1 | | | 57 |
| 615,000 | 615,000 | | 27.45 | Yes | 10 | 12 | | 1 | 148 | 1 | 86 | | 15 | | 47 | 58 |
| 54,900 | 54,900 | | 34.61 | Yes | 6 | 15 | 1 | 2 | 25 | | 24 | | | 2 | 1 | 59 |
| | | | | Yes | 8 | 12 | | | 10 | | 9 | | | | 1 | 60 |
| | | | | No | 8 | 12 | | | 2 | | | | | | 2 | 61 |
| | | | | No | 8 | 14 | | 1 | | | | | | 1 | | 62 |
| | | | | Yes | 8 | 12 | | | | | | | | | | 63 |
| | | | | No | 8 | 8 | | | | | | | | | | 64 |
| | | | | No | 9 | 9 | | | | | | | | | | 65 |
| [8]1,027 | 1,027 | | 32.19 | No | 12 | 28 | | | | | | | | | | 66 |
| | | | | No | 6 | 25 | 1 | | | | | | | | | 67 |
| 45,425 | 45,425 | | 27.69 | No | 10 | 18 | 1 | 2 | 11 | | 5 | | 1 | 2 | 5 | 68 |
| 26,280 | 26,280 | | 20.75 | No | 6 | 15 | 1 | | | | | | | | | 69 |
| 49,600 | 49,600 | | 25.97 | Yes | 8 | 15 | | | 5 | | 1 | | 4 | | | 70 |
| | | | | No | 6 | 20 | | | | | | | | | | 71 |
| 705,889 | 705,889 | | 34.74 | Yes | 6 | 15 | 1 | 8 | 145 | | 86 | 2 | 2 | 6 | 57 | 72 |
| 32,850 | 32,850 | | 33.32 | No | 8 | 15 | | 1 | 7 | | 5 | | | 1 | 2 | 73 |
| [9]8,942 | 8,942 | | 89.24 | No | 10 | 35 | 1 | | | | | | | | | 74 |
| 35,910 | 35,910 | | 27.51 | Yes | 7 | 15 | | | 3 | | 1 | | | | 2 | 75 |
| [11]2,325,843 | 2,267,089 | 58,754 | 40.72 | | | | 14 | 55 | 778 | 7 | 559 | 4 | 45 | 44 | 174 | |
| 12,775 | 12,775 | | 20.34 | No | 7 | | | | | | | | | | | 1 |
| 97,800 | 97,800 | | 20.32 | Yes | 12 | | 1 | 1 | 12 | | 12 | | | 1 | | 2 |
| | | | | No | 12 | 28 | | | | | | | | | | 3 |
| 1,610,891 | 1,567,091 | 43,800 | 45.88 | Yes | 15 | 45 | | 27 | 527 | 6 | 407 | 1 | 11 | 20 | 109 | 4 |
| | | | | Yes | 15 | 30 | | 4 | 72 | | 61 | 1 | 3 | 3 | 8 | 5 |
| | | | | Yes | 15 | 40 | | 1 | 28 | | 25 | 1 | 3 | | | 6 |
| [3]20,520 | 20,520 | | 29.38 | No | 6 | 22 | | 1 | 2 | | 2 | | | 1 | | 7 |
| 350,400 | 341,640 | 8,760 | 37.48 | Yes | 15 | 20 | 2 | 6 | 90 | | 32 | 1 | 21 | 5 | 37 | 8 |
| [12]40,482 | 35,892 | 4,590 | 16.44 | Yes | 6 | 45 | 1 | | | | | | | | | 9 |
| | | | | No | 12 | 50 | | 3 | 3 | | | | 1 | 3 | 2 | 10 |
| | | | | No | 7 | 11 | 1 | 3 | 8 | | 1 | | 1 | 3 | 6 | 11 |
| | | | | No | 4 | 6 | | | | | | | | | | 12 |
| 14,000 | 14,000 | | 43.07 | No | 12 | | 2 | | | | | | | | | 13 |
| | | | | No | 10 | 20 | 1 | 2 | 6 | | 5 | | | 2 | 1 | 14 |
| | | | | Yes | 8 | 20 | 1 | 3 | 12 | | 5 | | 2 | 3 | 5 | 15 |
| 52,560 | 52,560 | | 16.26 | No | 12 | 12 | | | 1 | | 1 | | | | | 16 |
| [13]45,900 | 45,900 | | 16.88 | Yes | 8 | 10 | 1 | 1 | 1 | 1 | 1 | | | | | 17 |

[9] For 24 months only.
[10] Includes 5 companies operating part of year.
[11] For 11 companies only, and includes 4 companies operating part of year.
[12] For 11 months only.
[13] For 9 months only.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | MICHIGAN—Continued. | | | | | | | | | |
| 18 | Marquette and Presque Isle | 382,797 | 373,672 | 9,125 | 2 | 53,382 | 131,400 | 131,400 | ..... | 2.84 |
| 19 | Menominee Light, Railway and Power | 529,764 | 529,764 | ..... | 3 | 78,961 | [1] 176,588 | 176,588 | ..... | 3.00 |
| 20 | Toledo and Monroe | 518,565 | 518,565 | ..... | ..... | 23,657 | 318,248 | 292,102 | 26,146 | 1.78 |
| 21 | Muskegon Traction and Lighting | [2] 1,779,298 | 1,656,762 | 123,531 | 1 | 108,932 | [2] 547,334 | 534,504 | 12,830 | 3.10 |
| 22 | Detroit, Plymouth and Northville | 236,600 | 236,600 | ..... | ..... | 13,918 | 188,249 | 188,249 | ..... | 1.26 |
| 23 | Owosso and Corunna Electric | 299,409 | 299,409 | ..... | ..... | 69,306 | 104,043 | 104,043 | ..... | 2.88 |
| 24 | Saginaw Valley Traction | 4,707,397 | 3,838,827 | 868,570 | 3 | 99,328 | 1,319,058 | 1,233,388 | 85,670 | 3.11 |
| | MINNESOTA. | | | | | | | | | |
| | Total for state | 90,698,793 | 73,236,612 | 17,462,181 | 77 | 216,567 | 15,692,887 | 15,692,887 | ..... | 4.67 |
| 1 | Interstate Traction | 240,000 | 240,000 | ..... | ..... | 76,433 | 61,240 | 61,240 | ..... | 3.92 |
| 2 | Duluth-Superior Traction | 10,903,849 | 9,178,517 | 1,725,332 | 13 | 129,823 | 2,258,884 | 2,258,884 | ..... | 4.06 |
| 3 | Twin City Rapid Transit | 78,597,815 | 63,009,957 | 15,587,858 | 62 | 251,016 | 12,895,343 | 12,895,343 | ..... | 4.89 |
| 4 | Benton Power and Traction | 416,841 | 380,341 | 36,500 | 1 | 43,919 | 185,420 | 185,420 | ..... | 2.05 |
| 5 | Winona Railway and Light | 540,288 | 427,797 | 112,491 | 1 | 91,999 | 292,000 | 292,000 | ..... | 1.47 |
| | MISSISSIPPI. | | | | | | | | | |
| | Total for state | [3] 3,127,940 | 3,101,015 | 26,925 | 3 | 122,570 | [3] 923,990 | 923,990 | ..... | 3.36 |
| 1 | Greenville Light and Car | 147,629 | 147,629 | ..... | ..... | 147,629 | 87,600 | 87,600 | ..... | 1.69 |
| 2 | Jackson Railway, Light and Power | 951,895 | 951,895 | ..... | ..... | 178,257 | 279,552 | 279,552 | ..... | 3.41 |
| 3 | Meridian Light and Railway | 565,425 | 538,500 | 26,925 | 3 | 94,308 | 118,800 | 118,800 | ..... | 4.53 |
| 4 | Natchez Railway and Power | [5] 274,702 | 274,702 | ..... | ..... | 61,045 | [5] 67,733 | 67,733 | ..... | 4.06 |
| 5 | Vicksburg Railroad, Power and Manufacturing | 1,188,289 | 1,188,289 | ..... | ..... | 135,804 | 370,305 | 370,305 | ..... | 3.21 |
| | MISSOURI. | | | | | | | | | |
| | Total for state | 290,092,823 | 211,808,737 | 78,284,086 | 342 | 279,291 | 55,762,991 | 55,326,272 | 436,719 | 3.83 |
| 1 | Citizens Street Railway | 16,000 | 16,000 | ..... | ..... | 9,143 | 14,600 | 14,600 | ..... | 1.10 |
| 2 | Carrollton Electric Railway | 53,107 | 53,107 | ..... | ..... | 28,248 | 16,790 | 13,140 | 3,650 | 4.04 |
| 3 | Clinton Street Railway | 3,258 | 3,258 | ..... | ..... | 2,413 | 1,565 | 1,565 | ..... | 2.08 |
| 4 | Hannibal Railway and Electric | 450,000 | 450,000 | ..... | ..... | 105,882 | 120,450 | 120,450 | ..... | 3.74 |
| 5 | Southwest Missouri Electric Railway | 2,591,250 | 2,500,000 | 91,250 | 4 | 68,287 | 962,484 | 955,284 | 7,200 | 2.62 |
| 6 | Metropolitan | 84,260,098 | 57,148,083 | 27,112,015 | 80 | 315,317 | 16,032,864 | 15,979,864 | 53,000 | 3.58 |
| 7 | Missouri Water, Light and Traction | 261,000 | 261,000 | ..... | ..... | 63,350 | 115,340 | 115,340 | ..... | 2.26 |
| 8 | St. Joseph Railway, Light, Heat and Power | 11,426,480 | 8,534,278 | 2,892,202 | 8 | 242,796 | 2,198,630 | 2,198,630 | ..... | 3.88 |
| 9 | St. Louis Transit | 167,413,796 | 122,063,877 | 45,349,919 | 235 | 338,230 | 29,602,974 | 29,378,488 | 224,486 | 4.15 |
| 10 | St. Louis and Suburban | 10,867,345 | 9,511,483 | 1,355,862 | 3 | 258,324 | 2,844,487 | 2,761,612 | 82,875 | 3.44 |
| 11 | St. Louis and Meramec River | 8,191,877 | 7,388,798 | 803,079 | 2 | 209,374 | 2,290,773 | 2,235,259 | 55,514 | 3.31 |
| 12 | St. Louis and Kirkwood | 1,278,447 | 875,188 | 403,259 | 4 | 35,050 | 531,983 | 521,989 | 9,994 | 1.68 |
| 13 | St. Louis, St. Charles and Western | [1] 1,027,950 | 1,027,950 | ..... | ..... | 64,247 | 377,596 | 377,596 | ..... | 2.72 |
| 14 | Railway and Electric of Sedalia | 301,500 | 275,000 | 26,500 | 3 | 45,380 | 141,893 | 141,893 | ..... | 1.94 |
| 15 | Kickapoo Transit | 72,000 | 72,000 | ..... | ..... | 25,714 | 52,600 | 52,600 | ..... | 1.37 |
| 16 | Springfield Traction | 1,878,715 | 1,628,715 | 250,000 | 3 | 99,921 | 457,962 | 457,962 | ..... | 3.56 |
| | MONTANA. | | | | | | | | | |
| | Total for state | 6,917,002 | 6,858,502 | 58,500 | 3 | 108,503 | 1,354,822 | 1,313,942 | 40,880 | 5.22 |
| 1 | Anaconda Copper Mining | 799,116 | 799,116 | ..... | ..... | 118,388 | 122,482 | 122,482 | ..... | 6.52 |
| 2 | Bozeman Street Railway | 39,711 | 39,711 | ..... | ..... | 15,884 | 16,500 | 16,500 | ..... | 2.41 |
| 3 | Butte Electric Railway | 4,731,000 | 4,731,000 | ..... | ..... | 189,543 | 807,380 | 766,500 | 40,880 | 6.17 |
| 4 | Great Falls Street Railway | 997,936 | 939,436 | 58,500 | 3 | 78,944 | 300,460 | 300,460 | ..... | 3.13 |
| 5 | Helena Power and Light | 349,239 | 349,239 | ..... | ..... | 20,425 | 108,000 | 108,000 | ..... | 3.23 |
| | NEBRASKA. | | | | | | | | | |
| | Total for state | [3] 27,619,504 | 22,228,325 | 5,391,179 | 40 | 195,569 | [3] 6,273,945 | 6,238,210 | 35,735 | 3.56 |
| 1 | Lincoln Traction | 4,013,804 | 3,573,213 | 440,591 | 3 | 96,573 | 1,191,159 | 1,155,424 | 35,735 | 3.09 |
| 2 | Nebraska City Street Railway | 28,980 | 28,980 | ..... | ..... | 9,318 | 29,200 | 29,200 | ..... | .99 |
| 3 | Omaha Street Railway | 23,408,928 | 18,540,000 | 4,868,928 | 36 | 257,500 | 5,007,074 | 5,007,074 | ..... | 3.70 |
| 4 | Metropolitan Cable Railway | [4] 167,792 | 86,132 | 81,660 | 1 | 55,569 | [2] 46,512 | 46,512 | ..... | 1.85 |
| | NEW HAMPSHIRE. | | | | | | | | | |
| | Total for state | 12,234,120 | 11,304,908 | 929,212 | 5 | 67,432 | 3,214,879 | 3,214,611 | 268 | 3.52 |
| 1 | Concord Street Railway | 1,510,856 | 1,510,856 | ..... | ..... | 118,871 | 451,372 | 451,372 | ..... | 3.35 |
| 2 | Chester and Derry | 233,218 | 233,218 | ..... | ..... | 29,709 | 57,100 | 57,100 | ..... | 4.08 |
| 3 | Exeter, Hampton and Amesbury | 3,300,220 | 3,227,220 | 73,000 | 4 | 41,465 | 953,152 | 953,152 | ..... | 3.39 |
| 4 | Keene Electric Railway | 474,547 | 474,547 | ..... | ..... | 72,783 | 158,415 | 158,415 | ..... | 3.00 |
| 5 | Laconia Street Railway | 436,171 | 436,171 | ..... | ..... | 49,174 | 149,924 | 149,924 | ..... | 2.91 |
| 6 | Manchester Street Railway | 5,427,947 | 4,571,735 | 856,212 | 1 | 132,169 | 1,084,560 | 1,084,560 | ..... | 4.22 |
| 7 | Portsmouth Electric Railway | 851,161 | 851,161 | ..... | ..... | 44,147 | 360,356 | 360,088 | 268 | 2.36 |
| | NEW JERSEY. | | | | | | | | | |
| | Total for state | [10] 228,082,103 | 188,976,899 | 39,105,204 | 118 | 219,414 | [10] 35,372,346 | 35,355,733 | 16,613 | 5.35 |
| 1 | West Jersey and Seashore | 5,206,304 | 5,206,304 | ..... | ..... | 273,584 | 1,438,770 | 1,438,770 | ..... | 3.62 |
| 2 | Bridgeton and Millville | 1,781,980 | 1,698,227 | 83,753 | 1 | 48,521 | 428,350 | 428,350 | ..... | 3.96 |
| 3 | Brigantine Transportation | [12] 79,075 | 79,075 | ..... | ..... | 10,203 | [12] 32,890 | 32,890 | ..... | 2.40 |
| 4 | Camden, Gloucester and Woodbury | 3,750,000 | 3,500,000 | 250,000 | 1 | 141,243 | 665,672 | 665,672 | ..... | 5.26 |
| 5 | Camden and Suburban | 9,586,833 | 8,217,072 | 1,369,761 | 33 | 121,178 | 2,501,430 | 2,495,406 | 6,024 | 3.29 |
| 6 | Cape May, Delaware Bay and Sewells Point | 366,206 | 366,206 | ..... | ..... | 29,461 | 74,592 | 74,592 | ..... | 4.91 |
| 7 | Elizabeth, Plainfield and Central Jersey | 4,961,474 | 4,706,371 | 255,103 | 1 | 76,526 | 1,802,273 | 1,802,273 | ..... | 2.61 |
| 8 | New Jersey and Hudson River Railway and Ferry | 1,649,843 | 1,649,843 | ..... | ..... | 105,759 | 326,075 | 326,075 | ..... | 5.06 |

[1] Estimated.
[2] For 10 months only.
[3] Includes 1 company operating part of year.
[4] For 3 companies only, and includes 1 company operating part of year.
[5] For 5 months only.
[6] Not reported.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | | Number. |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | |
| | | | | No. | 9 | | | | | | | | | | | 18 |
| | | | | No. | 20 | | 1 | 1 | 1 | | | | | 1 | 1 | 19 |
| | | | | No. | 10 | 50 | | 1 | | | | | | 1 | | 20 |
| [2] 68,417 | 66,813 | 1,604 | 24.78 | No. | 8 | | 1 | 1 | 5 | | 2 | | 1 | 1 | 2 | 21 |
| | | | | No. | 20 | 20 | | | 1 | | 1 | | | | | 22 |
| 12,098 | 12,098 | | 24.75 | No. | 16 | 16 | 1 | | | | | | | | | 23 |
| | | | | No. | 8 | 20 | 1 | | 9 | | 4 | | 2 | | 3 | 24 |
| 1,699,868 | 1,699,868 | | 43.08 | | | | 5 | 11 | 1,653 | | 795 | 3 | 200 | 8 | 658 | |
| 6,804 | 6,804 | | 35.27 | No. | 8 | | | | | | | | | | | 1 |
| 267,934 | 267,934 | | 34.26 | Yes | 8 | | | 2 | 80 | | 32 | | 19 | 2 | 29 | 2 |
| 1,366,850 | 1,366,850 | | 46.10 | Yes | 8 | 27 | 4 | 9 | 1,573 | | 763 | 3 | 181 | 6 | 629 | 3 |
| 26,280 | 26,280 | | 14.47 | No. | 12 | 15 | | | | | | | | | | 4 |
| 32,000 | 32,000 | | 13.37 | No. | 12 | | 1 | | | | | | | | | 5 |
| [4] 83,092 | 83,092 | | 29.06 | | | | 2 | 2 | 24 | | 1 | 1 | 8 | 1 | 15 | |
| | | | | No. | 12 | | | | | | | | | | | 1 |
| 31,409 | 31,409 | | 30.30 | No. | 20 | 25 | | | 14 | | | | 8 | | 6 | 2 |
| | | | | No. | 12 | | 1 | 2 | 1 | | | 1 | | 1 | 1 | 3 |
| [5] 9,240 | 9,240 | | 29.73 | No. | 10 | | 1 | | 1 | | 1 | | | | | 4 |
| 42,443 | 42,443 | | 28.00 | No. | (6) | (6) | | | 8 | | | | | | 8 | 5 |
| [7] 5,261,037 | 5,210,997 | 50,040 | 39.53 | | | | 6 | 116 | 6,274 | 16 | 2,944 | 10 | 612 | 90 | 2,718 | |
| | | | | No. | 4 | | | | | | | | | | | 1 |
| | | | | Yes | 6 | 20 | | | | | | | | | | 2 |
| | | | | No. | 5 | | | | | | | | | | | 3 |
| 14,600 | 14,600 | | 30.82 | No. | 10 | | 1 | 1 | 2 | | 2 | | | 1 | | 4 |
| | | | | No. | 10 | 30 | 2 | 1 | 11 | | 4 | | 1 | 1 | 6 | 5 |
| 1,788,590 | 1,782,590 | 6,000 | 32.06 | Yes | 20 | 30 | 1 | 21 | 2,181 | 2 | 1,758 | 1 | 189 | 18 | 234 | 6 |
| | | | | No. | 10 | | | | | | | | | | | 7 |
| 132,646 | 132,646 | | 64.34 | Yes | 10 | 20 | 1 | 2 | 61 | | 28 | | 9 | 2 | 24 | 8 |
| 3,009,800 | 2,974,003 | 35,797 | 41.04 | Yes | 15 | 15 | | 77 | 3,900 | 12 | 1,100 | 9 | 400 | 56 | 2,400 | 9 |
| 158,027 | 153,423 | 4,604 | 62.00 | Yes | 15 | 15 | | 6 | 54 | | 23 | | 6 | 6 | 25 | 10 |
| 127,265 | 124,181 | 3,084 | 59.50 | Yes | 15 | 15 | | 6 | 45 | 1 | 17 | | 4 | 5 | 24 | 11 |
| 30,109 | 29,554 | 555 | 29.61 | No. | 15 | 15 | | | 6 | | 4 | | 1 | | 1 | 12 |
| | | | | No. | | 17 | | 2 | 1 | 1 | 1 | | | 1 | | 13 |
| | | | | No. | 6 | 15 | 1 | | 2 | | | | | | 2 | 14 |
| | | | | No. | 5 | 5 | | | | | | | | | | 15 |
| | | | | No. | 15 | 15 | | | 11 | | 7 | | 2 | | 2 | 16 |
| [8] 55,070 | 55,070 | | 23.40 | | | | 3 | 2 | 19 | | 13 | | 1 | 2 | 5 | |
| | | | | No. | 6 | 25 | 1 | 1 | 3 | | 1 | | 1 | 1 | 1 | 1 |
| | | | | Yes | 12 | | | | | | | | | | | 2 |
| | | | | No. | 8 | 15 | 1 | | 13 | | 9 | | | | 4 | 3 |
| 29,150 | 29,150 | | 32.23 | No. | 10 | 15 | 1 | | 3 | | 3 | | | | | 4 |
| 25,920 | 25,920 | | 13.47 | No. | 8 | 15 | | 1 | | | | | | 1 | | 5 |
| | | | | | | | | 3 | 211 | 1 | 184 | | 9 | 2 | 18 | |
| | | | | Yes | 10 | 17 | | | 60 | | 49 | | 9 | | 2 | 1 |
| | | | | No. | 15 | | | | | | | | | | | 2 |
| | | | | Yes | 10 | | | 3 | 150 | 1 | 135 | | | 2 | 15 | 3 |
| | | | | No. | 6 | | | | 1 | | | | | | 1 | 4 |
| [9] 161,145 | 161,145 | | 32.52 | | | | 5 | 2 | 62 | | 42 | | 6 | 2 | 14 | |
| | | | | No. | 8 | | 1 | 1 | 1 | | | | 1 | 1 | | 1 |
| 7,665 | 7,665 | | 30.43 | Yes | 8 | | 1 | | | | | | | | | 2 |
| | | | | Yes | 5 | 12 | 2 | 1 | 24 | | 13 | | | 1 | 11 | 3 |
| | | | | Yes | 8 | 12 | | | | | | | | | | 4 |
| [1] 18,840 | 18,840 | | 23.15 | No. | 8 | | | | | | | | | | | 5 |
| 134,640 | 134,640 | | 33.96 | No. | 8 | 15 | 1 | | 31 | | 27 | | 4 | | | 6 |
| | | | | Yes | 14 | 25 | | | 6 | | 2 | | 1 | | 3 | 7 |
| [11] 700,478 | 697,838 | 2,640 | 28.36 | | | | 5 | 47 | 3,057 | 6 | 1,904 | 4 | 120 | 37 | 1,033 | |
| | | | | Yes | 12 | 17 | | 1 | 19 | | 9 | | | 1 | 10 | 1 |
| 50,312 | 50,312 | | 33.75 | Yes | 8 | 20 | 1 | | 1 | | 1 | | | | | 2 |
| | | | | No. | 20 | | | | 3 | | 3 | | | | | 3 |
| | | | | Yes | 8 | 15 | | 3 | 22 | 2 | 11 | | 3 | 1 | 8 | 4 |
| 319,066 | 318,298 | 768 | 25.82 | No. | 8 | 13 | 1 | 4 | 212 | 1 | 147 | 2 | 29 | 1 | 36 | 5 |
| | | | | No. | 6 | 15 | | | | | | | | | | 6 |
| | | | | No. | 10 | 12 | | | 42 | | 30 | | 2 | | 10 | 7 |
| | | | | No. | 8 | 15 | | 1 | 37 | | 28 | | 9 | 1 | | 8 |

[7] For 7 companies only.
[8] For 2 companies only.
[9] For 3 companies only.
[10] Includes 4 companies operating part of year.
[11] For 7 companies only, and includes 1 company operating part of year.
[12] For 3½ months only.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | Transfer points. | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | NEW JERSEY—Continued. | | | | | | | | | |
| 9 | Jersey City, Hoboken and Paterson | 47,964,287 | 37,451,408 | 10,512,879 | 18 | 266,444 | 6,859,229 | 6,859,229 | | 5.46 |
| 10 | North Jersey Street Railway | 128,605,253 | 103,624,753 | 24,980,500 | 46 | 418,550 | 15,324,609 | 15,324,609 | | 6.76 |
| 11 | Jersey Central Traction | [1]71,143 | 65,297 | 5,846 | 1 | 20,929 | [1]29,704 | 29,704 | | 2.20 |
| 12 | Monmouth County Electric | 920,885 | 920,885 | | | 90,638 | 318,794 | 318,794 | | 2.89 |
| 13 | Atlantic Coast Electric Railroad | 3,743,541 | 3,737,541 | 6,000 | 1 | 157,835 | 801,893 | 801,893 | | 4.66 |
| 14 | Millville Traction | 636,177 | 629,401 | 6,776 | 1 | 47,181 | 185,208 | 185,208 | | 3.40 |
| 15 | Mt. Holly Street Railway | 16,800 | 16,800 | | | 13,770 | [2]8,138 | 8,138 | | 2.06 |
| 16 | Middlesex and Somerset | 3,921,701 | 3,812,201 | 109,500 | 1 | 76,244 | 1,116,408 | 1,116,408 | | 3.41 |
| 17 | Ocean City Electric Railroad | [2]248,926 | 248,926 | | | 33,190 | [2]31,500 | 31,500 | | 7.90 |
| 18 | Orange and Passaic Valley | 1,950,908 | 1,785,908 | 165,000 | 1 | 180,577 | 452,670 | 452,670 | | 3.95 |
| 19 | South Orange and Maplewood | 471,206 | 416,820 | 54,386 | 1 | 77,189 | 140,901 | 140,312 | 589 | 2.97 |
| 20 | Raritan Traction | 880,128 | 880,128 | | | 97,144 | 297,308 | 297,308 | | 2.96 |
| 21 | Point Pleasant Traction, Electric Light and Power | [2]98,000 | 98,000 | | | 42,982 | [2]32,666 | [2]32,666 | | 3.00 |
| 22 | Newark and Hackensack | 830,263 | 830,263 | | | 55,885 | 441,240 | 441,240 | | 1.88 |
| 23 | Trenton Street Railway | 9,139,941 | 7,834,241 | 1,305,700 | 12 | 179,684 | 1,790,417 | 1,790,417 | | 4.38 |
| 24 | Camden and Trenton | 863,456 | 863,456 | | | 27,853 | 161,096 | 161,096 | | 5.36 |
| 25 | Trenton, Lawrenceville and Princeton | 228,410 | 228,410 | | | 22,795 | 99,833 | 89,833 | 10,000 | 2.54 |
| 26 | Orange Mountain Traction | 109,363 | 109,363 | | | 78,116 | 10,680 | 10,680 | | 10.24 |
| | NEW MEXICO. | | | | | | | | | |
| | Total for territory | 73,000 | 73,000 | | | 34,762 | 61,320 | 61,320 | | 1.19 |
| 1 | Albuquerque Street Railroad | 73,000 | 73,000 | | | 34,762 | 61,320 | 61,320 | | 1.19 |
| | NEW YORK. | | | | | | | | | |
| | Total for state | [4]1,424,915,703 | 1,144,491,509 | 280,424,194 | 1,157 | 407,305 | [5]251,312,176 | 234,279,043 | 17,033,133 | 4.89 |
| 1 | Albany and Hudson Railway and Power | 1,055,990 | 1,055,990 | | | 23,730 | 637,892 | 615,060 | 22,832 | 1.72 |
| 2 | United Traction | 28,796,923 | 26,417,076 | 2,379,847 | 12 | 337,254 | 7,707,050 | 7,449,410 | 257,640 | 3.55 |
| 3 | Hudson Valley Railway | 4,408,761 | 4,246,883 | 161,878 | 7 | 31,670 | 1,655,461 | 1,507,770 | 147,691 | 2.82 |
| 4 | Troy and New England | 271,765 | 271,765 | | | 27,176 | 159,348 | 139,348 | 20,000 | 1.95 |
| 5 | Amsterdam Street Railroad | 1,094,542 | 1,028,091 | 66,451 | 1 | 179,423 | 330,540 | 330,540 | | 3.11 |
| 6 | Auburn City Railway | 2,112,559 | 1,718,809 | 393,750 | 1 | 137,395 | 496,627 | 496,627 | | 3.46 |
| 7 | Auburn Interurban Electric | 355,334 | 355,334 | | | 49,977 | 92,928 | 91,120 | 1,808 | 3.90 |
| 8 | Ballston Terminal Railroad | 73,189 | 73,189 | | | 4,879 | 87,130 | 51,536 | 35,594 | 1.42 |
| 9 | Binghamton Railway | 5,031,090 | 4,219,142 | 811,948 | 2 | 114,775 | 824,050 | 824,050 | | 5.12 |
| 10 | International Railway | 87,239,398 | 63,224,321 | 24,015,077 | 128 | 279,977 | 14,791,144 | 14,595,888 | 195,256 | 4.33 |
| 11 | Crosstown Street Railway | 15,693,288 | 10,912,560 | 4,780,728 | 41 | 111,615 | 2,694,868 | 2,694,868 | | 4.05 |
| 12 | Buffalo and Depew | 211,249 | 211,249 | | | 14,361 | 210,029 | 206,119 | 3,910 | 1.02 |
| 13 | Buffalo, Hamburg and Aurora | [1]109,288 | 91,788 | 17,500 | 1 | 6,675 | [1]74,160 | 74,160 | | 1.24 |
| 14 | Ontario Light and Traction | 138,667 | 138,667 | | | 46,222 | 73,567 | 73,557 | | 1.89 |
| 15 | Catskill Electric Railway | 176,595 | 176,595 | | | 60,895 | 100,134 | 100,134 | | 1.76 |
| 16 | Cohoes City Railway | 454,229 | 380,782 | 73,447 | 1 | 59,966 | 209,724 | 209,724 | | 1.82 |
| 17 | Cortland County Traction | 745,210 | 719,626 | 25,584 | 3 | 71,676 | 208,239 | 196,616 | 11,623 | 3.66 |
| 18 | Corning and Painted Post | 686,396 | 670,407 | 15,989 | 1 | 118,628 | 173,638 | 173,638 | | 3.86 |
| 19 | Dunkirk and Fredonia | 479,959 | 479,959 | | | 127,989 | 89,723 | 89,583 | 140 | 5.36 |
| 20 | Dunkirk and Point Gratiot | 201,811 | 201,811 | | | 62,096 | 20,980 | 20,980 | | 9.62 |
| 21 | Elmira Water, Light and Railroad | 4,155,206 | 2,511,146 | 1,644,060 | 7 | 92,186 | 1,165,824 | 1,165,824 | | 2.15 |
| 22 | Ocean Electric Railway | 109,180 | 109,180 | | | 104,980 | 16,252 | 16,252 | | 6.72 |
| 23 | Citizens Street Railway | 747,304 | 747,304 | | | 106,758 | 167,421 | 167,421 | | 4.46 |
| 24 | Fonda, Johnstown and Gloversville | 1,406,160 | 1,406,160 | | | 73,969 | 326,988 | 326,988 | | 4.30 |
| 25 | Lake Ontario and Riverside | 45,335 | 45,335 | | | 43,591 | 13,140 | 13,140 | | 3.45 |
| 26 | Geneva, Waterloo, etc., Traction | 1,421,391 | 1,378,629 | 42,762 | 1 | 77,669 | 411,251 | 411,251 | | 3.35 |
| 27 | Mountain Lake Electric | 80,912 | 80,912 | | | 17,980 | 42,164 | 42,164 | | 1.92 |
| 28 | Bennington and Hoosick Valley | 766,899 | 766,899 | | | 46,422 | 263,125 | 258,125 | 5,000 | 2.97 |
| 29 | Hornellsville Electric Railway | 318,096 | 296,909 | 21,187 | 2 | 58,562 | 180,210 | 180,210 | | 1.65 |
| 30 | Hornellsville and Canisteo | 340,941 | 340,941 | | | 63,966 | 102,730 | 95,212 | 7,518 | 3.58 |
| 31 | Huntington Railroad | 222,461 | 222,461 | | | 69,737 | 51,335 | 51,335 | | 4.33 |
| 32 | Ithaca Street Railway | 2,218,964 | 1,893,846 | 325,118 | 1 | 246,595 | 433,556 | 432,556 | | 4.37 |
| 33 | Jamestown Street Railway | 3,143,655 | 2,608,361 | 535,294 | 6 | 125,523 | 662,911 | 661,021 | 1,890 | 3.95 |
| 34 | Kingston Consolidated | 2,285,286 | 2,217,334 | 67,952 | 5 | 242,067 | 552,351 | 552,351 | | 4.01 |
| 35 | Lewiston and Youngstown Frontier | 57,808 | 57,808 | | | 6,645 | 69,515 | 61,515 | 8,000 | .94 |
| 36 | Lima-Honeoye Light and Railroad | 24,736 | 24,736 | | | 4,794 | 25,404 | 21,900 | 3,504 | 1.13 |
| 37 | Middletown-Goshen Electric | 1,003,310 | 951,251 | 52,059 | 4 | 74,085 | 378,106 | 363,806 | 14,300 | 2.61 |
| 38 | New York and Long Island Traction | [1]65,499 | 65,499 | | | 7,278 | [1]16,773 | 16,773 | | 3.90 |
| 39 | Orange County Traction | 1,757,843 | 1,578,919 | 178,924 | 3 | 95,750 | 448,077 | 431,649 | 16,428 | 3.66 |
| 40 | New Paltz and Poughkeepsie | 158,613 | 158,613 | | | 17,110 | 71,640 | 71,640 | | 2.21 |
| 41 | Interurban | 403,532,402 | 288,007,915 | 115,524,487 | 318 | 1,484,088 | 44,380,922 | 44,233,328 | 147,594 | 6.51 |
| 42 | Central Crosstown | 17,657,420 | 11,666,613 | 5,990,807 | 34 | 833,330 | 1,577,158 | 1,577,158 | | 7.40 |
| 43 | Fulton Street Railroad | 1,234,865 | 869,948 | 364,917 | 5 | 460,290 | 108,266 | 108,266 | | 8.04 |
| 44 | Thirty-fourth Street Crosstown | 17,668,271 | 9,113,371 | 8,554,900 | 11 | 1,627,388 | 1,167,952 | 1,167,952 | | 7.80 |
| 45 | Twenty-eighth and Twenty-ninth Street Crosstown | 6,125,513 | 3,610,197 | 2,515,316 | 12 | 474,402 | 551,534 | 551,534 | | 6.55 |
| 46 | Third Avenue Railroad | 52,709,412 | 44,218,326 | 8,491,087 | 8 | 1,612,630 | 6,707,446 | 6,707,446 | | 6.59 |
| 47 | Forty-second Street, Manhattanville and St. Nicholas Avenue | 20,671,960 | 16,470,115 | 4,201,835 | 8 | 584,918 | 2,996,526 | 2,996,526 | | 5.50 |
| 48 | Dry Dock, East Broadway and Battery | 17,428,582 | 14,337,293 | 3,091,289 | 15 | 701,776 | 2,047,193 | 2,047,193 | | 7.00 |
| 49 | Kingsbridge Railway | 181,379 | 140,785 | 40,594 | 1 | 22,526 | 50,095 | 50,095 | | 2.81 |
| 50 | Southern Boulevard Railroad | 2,209,926 | 1,210,091 | 999,835 | 4 | 172,870 | 456,392 | 456,292 | | 2.65 |
| 51 | Yonkers Railroad | 7,136,635 | 4,403,741 | 2,732,894 | 4 | 140,830 | 1,499,662 | 1,499,662 | | 2.94 |
| 52 | Union Railway | 38,961,728 | 22,073,170 | 16,908,558 | 12 | 310,452 | 6,070,768 | 6,064,392 | 6,376 | 3.64 |
| 53 | Tarrytown, White Plains and Mamaroneck | 1,337,615 | 1,294,274 | 43,341 | 6 | 69,250 | 759,784 | 759,784 | | 1.70 |
| 54 | Westchester Electric Railroad | 8,188,262 | 4,451,924 | 3,736,338 | 11 | 116,482 | 1,701,692 | 1,699,206 | 2,486 | 2.62 |
| 55 | Manhattan Railway (elevated) | 215,259,345 | 215,259,345 | | | 1,887,625 | 56,492,842 | 45,071,743 | 11,421,099 | 4.78 |
| 56 | Pelham Park Railroad | 190,000 | 190,000 | | | 126,667 | 31,000 | 31,000 | | 6.13 |
| 57 | City Island Railroad | 95,000 | 95,000 | | | 47,500 | 15,833 | 15,833 | | 6.00 |
| 58 | Brooklyn Rapid Transit | 304,695,311 | 253,809,609 | 50,885,702 | 368 | 481,877 | 58,189,766 | 53,636,529 | 4,553,237 | 4.73 |
| 59 | Coney Island and Brooklyn | 36,324,581 | 30,296,548 | 6,027,983 | 5 | 599,101 | 6,100,805 | 6,100,160 | 645 | 4.97 |
| 60 | Van Brunt Street and Erie Basin | 1,614,523 | 1,490,413 | 124,110 | 1 | 496,804 | 223,348 | 223,348 | | 6.67 |
| 61 | New York and Queens County | 12,759,449 | 11,126,586 | 1,632,863 | 7 | 149,410 | 2,649,115 | 2,649,115 | | 4.20 |
| 62 | New York and North Shore | 2,483,621 | 2,483,621 | | | 130,146 | 833,065 | 833,065 | | 2.98 |

[1] For 6 months only.
[2] Estimated.
[3] For 4 months only.
[4] Includes 6 companies operating part of year.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | | | Number. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | | |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | |
| | | | | Yes | 8 | 10 | | 16 | 368 | 2 | 220 | 2 | 27 | 12 | 121 | 9 |
| | | | | Yes | 10 | | | 18 | 2,206 | 1 | 1,396 | | 39 | 17 | 771 | 10 |
| [1] 6,516 | 6,516 | | 10.02 | No | 8 | | | | | | | | | | | 11 |
| 29,280 | 29,280 | | 31.45 | No | 5 | 8 | | 1 | | | | | | 1 | | 12 |
| | | | | No | 8 | | 1 | | 7 | | 3 | | 2 | | 2 | 13 |
| | | | | No | 12 | 15 | | | | | | | | | | 14 |
| | | | | No | 6 | | | | | | | | | | | 15 |
| | | | | Yes | 8 | 10 | | 1 | 7 | | 2 | | | 1 | 5 | 16 |
| | | | | No | 12 | | | | | | | | | | | 17 |
| | | | | No | 8 | | | 1 | 28 | | 15 | | | 1 | 13 | 18 |
| | | | | No | 8 | | | | | | | | | | | 19 |
| | | | | No | 8 | | | | 2 | | 2 | | | | | 20 |
| | | | | No | 6 | | | | | | | | | | | 21 |
| 42,952 | 42,952 | | 19.33 | No | 10 | 20 | | | 2 | | | | 1 | | 1 | 22 |
| 246,520 | 246,520 | | 31.78 | Yes | 12 | 20 | 1 | 1 | 86 | | 30 | | 6 | 1 | 50 | 23 |
| | | | | No | 8 | 18 | | | 15 | | 7 | | 2 | | 6 | 24 |
| 5,882 | 3,960 | 1,872 | 57.68 | No | | 40 | | | | | | | | | | 25 |
| | | | | No | | 5 | 1 | | | | | | | | | 26 |
| | | | | | | | | | 1 | | | | | | 1 | |
| | | | | No | 6 | 6 | | | 1 | | | | | | 1 | 1 |
| [6] 1,520,117 | 1,507,367 | 12,750 | 23.08 | | | | 30 | 178 | 1,023 | 61 | 577 | 30 | 71 | 87 | 375 | |
| | | | | Yes | 6 | 60 | 1 | 1 | 3 | | | 1 | 2 | | 1 | 1 |
| | | | | No | 12 | 25 | | 4 | 7 | | 2 | | | 4 | 5 | 2 |
| | | | | Yes | 8 | 18 | 3 | 3 | 10 | 1 | 7 | 2 | 2 | | 1 | 3 |
| | | | | No | | 17 | 1 | | | | | | | | | 4 |
| 38,325 | 38,325 | | 26.83 | No | 12 | 12 | 1 | | 2 | | 1 | | | | 1 | 5 |
| | | | | No | 8 | 12 | 1 | | 1 | | | | | | 1 | 6 |
| | | | | No | 10 | 25 | | 1 | | | | 1 | | | | 7 |
| | | | | Yes | 8 | 15 | | | 1 | | | | | | 1 | 8 |
| | | | | Yes | 12 | 20 | 2 | 2 | | | | | | 2 | | 9 |
| | | | | Yes | 12 | 40 | 2 | 14 | 45 | 3 | 23 | 2 | 2 | 9 | 20 | 10 |
| | | | | No | 12 | 30 | | 3 | 12 | 1 | 6 | 1 | | 1 | 6 | 11 |
| | | | | No | | 25 | | 1 | 1 | | 1 | | | 1 | | 12 |
| | | | | No | 10 | 30 | | | | | | | | | | 13 |
| | | | | No | 10 | | | | 3 | | | | | | 3 | 14 |
| | | | | No | 8 | 10 | | | | | | | | | | 15 |
| | | | | No | 9 | | | | | | | | | | | 16 |
| | | | | Yes | 10 | 14 | 1 | | 1 | | | | | | 1 | 17 |
| | | | | No | 12 | 12 | | | | | | | | | | 18 |
| | | | | Yes | 10 | | | | 3 | | 2 | | 1 | | | 19 |
| | | | | No | 12 | | | | 1 | | | | | | 1 | 20 |
| | | | | Yes | 10 | 16 | | | 6 | | 1 | | | | 5 | 21 |
| | | | | No | 10 | | | | | | | | | | | 22 |
| | | | | Yes | 6 | 8 | | | | | | | | | | 23 |
| 51,100 | 51,100 | | 27.52 | No | 8 | 12 | 1 | | | | | | | | | 24 |
| 5,475 | 5,475 | | 8.28 | No | 6 | | | | | | | | | | | 25 |
| | | | | No | 8 | 16 | 1 | 1 | 3 | | 2 | | | 1 | 1 | 26 |
| 4,685 | 4,685 | | 17.27 | No | 8 | 10 | | | | | | | | | | 27 |
| | | | | No | 8 | 15 | 1 | 1 | 1 | | | 1 | | | 1 | 28 |
| | | | | No | 8 | | | | | | | | | | | 29 |
| | | | | No | 8 | 12 | 1 | | | | | | | | | 30 |
| | | | | Yes | 8 | 14 | | | | | | | | | | 31 |
| | | | | Yes | 8 | 15 | 1 | 4 | | 2 | | 2 | | | | 32 |
| | | | | Yes | 12 | 15 | 1 | | | | | | | | | 33 |
| | | | | Yes | 12 | | 1 | | | | | | | | | 34 |
| | | | | Yes | | 30 | 1 | | | | | | | | | 35 |
| | | | | Yes | 5 | 20 | | | | | | | | | | 36 |
| | | | | No | 8 | 15 | 1 | | 1 | | 1 | | | | | 37 |
| [7] 1,710 | 1,710 | | 38.30 | No | 8 | 25 | | | | | | | | | | 38 |
| | | | | Yes | 8 | 12 | | | 6 | | 6 | | | | | 39 |
| | | | | Yes | 12 | 12 | | | 13 | | 12 | | 1 | | | 40 |
| | | | | No | 8 | | | 9 | 76 | 4 | 49 | | | 5 | 27 | 41 |
| | | | | No | 6 | | | 3 | 8 | 1 | 5 | 1 | 2 | 1 | 1 | 42 |
| | | | | No | 6 | | | | 1 | | 1 | | | | | 43 |
| | | | | No | 6 | | | | 4 | | 3 | | 1 | | | 44 |
| | | | | No | 6 | | | | 2 | | 2 | | | | | 45 |
| | | | | Yes | 7 | | | 2 | 18 | | 13 | | | 2 | 5 | 46 |
| | | | | No | 8 | | | | 6 | | 4 | | | | 2 | 47 |
| | | | | No | 6 | | | 2 | 2 | 2 | 2 | | | | | 48 |
| | | | | No | 7 | | | | | | | | | | | 49 |
| | | | | No | 8 | | | 1 | 4 | 1 | 3 | | | | 1 | 50 |
| | | | | Yes | 8 | 12 | | | 4 | | 2 | | 1 | | 1 | 51 |
| | | | | Yes | 8 | | | 12 | 28 | 12 | 15 | | 3 | | 10 | 52 |
| | | | | No | 8 | 8 | | 2 | 2 | 2 | 1 | | 1 | | | 53 |
| | | | | No | 8 | 12 | | 4 | 7 | 4 | 4 | | | | 3 | 54 |
| | | | | Yes | 18 | | | 14 | 15 | 4 | 4 | 10 | 11 | | | 55 |
| | | | | No | 6 | | | | | | | | | | | 56 |
| | | | | No | 6 | | | | | | | | | | | 57 |
| | | | | Yes | 10 | | | 60 | 574 | 17 | 324 | 4 | 19 | 39 | 231 | 58 |
| | | | | No | 8 | | | 8 | 3 | 1 | 1 | 1 | 1 | 6 | 1 | 59 |
| | | | | No | 8 | | | 1 | 6 | | 6 | | | 1 | | 60 |
| | | | | No | 8 | | | 3 | 11 | 3 | 11 | | | | | 61 |
| | | | | No | 15 | 25 | | 1 | | | | | | 1 | | 62 |

[5] For 95 companies only, and includes 6 companies operating part of year.
[6] For 10 companies only, and includes 1 company operating part of year.
[7] For 1¼ months only.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | NEW YORK—Continued. | | | | | | | | | |
| 63 | Staten Island Midland | 3,079,623 | 2,718,972 | 360,651 | 2 | 98,371 | 899,118 | 897,118 | 2,000 | 3.03 |
| 64 | Staten Island Electric | 4,782,282 | 4,349,459 | 432,823 | 4 | 140,215 | 1,123,615 | 1,122,794 | 821 | 3.87 |
| 65 | Niagara Gorge Railroad | 763,991 | 653,247 | 110,744 | 7 | 42,419 | 265,118 | 265,118 | ..... | 2.46 |
| 66 | Northport Traction | [1] 27,052 | 27,052 | ..... | ..... | 9,873 | [1] 10,209 | 10,209 | ..... | 2.65 |
| 67 | Ogdensburg Street Railway | 496,783 | 478,283 | 18,500 | 2 | 47,828 | 367,635 | 364,635 | 3,000 | 1.31 |
| 68 | Olean, Rock City and Bradford | 963,738 | 957,738 | 6,000 | 1 | 50,781 | 220,300 | 220,300 | ..... | 4.35 |
| 69 | Olean Street Railway | 1,255,103 | 1,232,035 | 23,068 | 1 | 92,984 | 326,396 | 326,396 | ..... | 3.77 |
| 70 | Oneida Railway | 82,495 | 82,495 | ..... | ..... | 54,997 | 38,802 | 38,802 | ..... | 2.13 |
| 71 | Oneonta, Cooperstown and Richfield Springs | 553,346 | 541,219 | 12,127 | 2 | 18,041 | 267,766 | 267,766 | ..... | 2.02 |
| 72 | Westchester Traction | 360,000 | 328,900 | 31,100 | 1 | 123,647 | 168,150 | 168,000 | 150 | 1.96 |
| 73 | Oswego Traction | 1,000,420 | 844,176 | 156,244 | 2 | 75,711 | 365,470 | 363,340 | 2,130 | 2.32 |
| 74 | Peekskill Lighting and Railroad | 815,388 | 776,794 | 38,594 | 3 | 74,980 | 203,752 | 203,752 | ..... | 3.81 |
| 75 | Penn Yan, Keuka Park and Branchport | 213,843 | 213,843 | ..... | ..... | 23,118 | 74,080 | 66,195 | 7,885 | 3.23 |
| 76 | Plattsburg Traction | 422,192 | 422,192 | ..... | ..... | 64,953 | 159,651 | 159,651 | ..... | 2.64 |
| 77 | New York and Stamford | [2] 1,991,401 | 1,859,401 | 132,000 | 3 | 112,486 | [2] 580,933 | 580,933 | ..... | 3.20 |
| 78 | Port Jervis Electric, Gas and Railroad | 241,937 | 212,964 | 28,973 | 1 | 41,758 | 85,240 | 85,240 | ..... | 2.50 |
| 79 | Poughkeepsie and Wappingers Falls | 2,008,647 | 1,813,420 | 195,227 | 5 | 104,641 | 500,301 | 500,301 | ..... | 3.62 |
| 80 | Rochester Railway | 26,719,909 | 20,171,260 | 6,548,649 | 23 | 192,254 | 5,249,617 | 5,196,819 | 52,798 | 3.88 |
| 81 | Rochester and Suburban | 490,966 | 478,966 | 12,000 | 1 | 43,084 | 144,067 | 144,067 | ..... | 3.32 |
| 82 | Rochester and Sodus Bay | 1,896,138 | 1,842,918 | 53,220 | 7 | 38,766 | 394,271 | 355,813 | 38,458 | 5.18 |
| 83 | Rochester, Charlotte and Manitou | [3] 165,420 | 165,420 | ..... | ..... | 21,345 | [3] 66,750 | 66,750 | ..... | 2.48 |
| 84 | Rome City | 215,610 | 205,851 | 9,759 | 3 | 33,969 | 85,742 | 85,742 | ..... | 2.40 |
| 85 | Schenectady Railway | 4,536,949 | 4,057,875 | 479,074 | 3 | 94,854 | 1,129,041 | 1,106,814 | 22,227 | 3.67 |
| 86 | Sea Cliff Inclined Cable | 24,751 | 24,751 | ..... | ..... | 137,506 | ([4]) | ..... | ..... | ..... |
| 87 | Southfield Beach Railroad | [5] 50,582 | 50,582 | ..... | ..... | 12,646 | [5] 8,349 | 8,349 | ..... | 6.06 |
| 88 | Syracuse Rapid Transit | 17,351,247 | 14,234,508 | 3,116,739 | 21 | 208,840 | 3,704,195 | 3,704,195 | ..... | 3.84 |
| 89 | Syracuse and Suburban | 1,433,475 | 1,433,475 | ..... | ..... | 100,173 | 399,410 | 382,498 | 16,912 | 3.75 |
| 90 | Syracuse, Lakeside and Baldwinsville | 1,940,467 | 1,940,467 | ..... | ..... | 84,258 | 425,047 | 425,047 | ..... | 4.57 |
| 91 | Utica and Mohawk Valley | 9,849,445 | 8,761,302 | 1,088,143 | 6 | 114,978 | 2,270,235 | 2,270,235 | ..... | 3.86 |
| 92 | Black River Traction | 1,188,605 | 1,188,605 | ..... | ..... | 113,525 | 400,000 | 400,000 | ..... | 2.97 |
| 93 | Elmira and Seneca Lake | 730,400 | 730,400 | ..... | ..... | 44,509 | 241,434 | 241,434 | ..... | 3.03 |
| 94 | Buffalo, Gardenville and Ebenezer | 275,426 | 275,426 | ..... | ..... | 58,978 | 101,500 | 100,609 | 891 | 2.74 |
| 95 | Hamburg Railway | 584,271 | 490,123 | 94,148 | 2 | 47,447 | 292,290 | 291,000 | 1,290 | 1.68 |
| 96 | Buffalo and Williamsville | 252,218 | 252,218 | ..... | ..... | 55,555 | 96,633 | 96,633 | ..... | 2.61 |
| | NORTH CAROLINA. | | | | | | | | | |
| | Total for state | 6,783,695 | 5,337,367 | 1,446,328 | 8 | 115,228 | 1,676,978 | 1,629,299 | 47,679 | 3.28 |
| 1 | Asheville Electric | 911,480 | 611,480 | 300,000 | 1 | 104,170 | 123,516 | 123,516 | ..... | 4.95 |
| 2 | Asheville Street Railroad | 1,274,667 | 1,274,667 | ..... | 1 | 157,756 | 344,392 | 336,598 | 7,794 | 3.79 |
| 3 | Asheville and Craggy Mountain | 39,026 | 39,026 | ..... | ..... | 2,561 | 42,055 | 14,170 | 27,885 | 2.75 |
| 4 | Charlotte Railway, Light and Power | 1,335,506 | 1,160,519 | 174,987 | 2 | 102,792 | [6] 412,880 | 412,880 | ..... | 2.81 |
| 5 | Raleigh Electric | 1,099,000 | 599,000 | 500,000 | 1 | 133,111 | 163,520 | 163,520 | ..... | 3.66 |
| 6 | Consolidated Railways, Light and Power | 1,244,968 | 900,000 | 344,968 | 1 | 198,548 | 243,171 | 243,171 | ..... | 3.70 |
| 7 | Fries Manufacturing and Power | 879,048 | 752,675 | 126,373 | 2 | 82,440 | 347,444 | 335,444 | 12,000 | 2.24 |
| | OHIO. | | | | | | | | | |
| | Total for state | [7] 356,788,221 | 285,434,579 | 71,353,642 | 189 | 121,284 | [7] 83,996,438 | 83,135,144 | 861,294 | 3.43 |
| 1 | Ashtabula Rapid Transit | 999,857 | 999,857 | ..... | ..... | 173,888 | 305,140 | 305,140 | ..... | 3.28 |
| 2 | Pennsylvania and Ohio | 758,346 | 758,346 | ..... | ..... | 27,328 | 287,620 | 287,620 | ..... | 2.64 |
| 3 | Ohio Central Traction | 255,000 | 255,000 | ..... | ..... | 14,982 | 166,805 | 166,805 | ..... | 1.53 |
| 4 | Consolidated | 31,991 | 31,991 | ..... | ..... | 15,996 | 6,720 | 6,720 | ..... | 4.76 |
| 5 | Stark Electric | 365,038 | 355,038 | 10,000 | 2 | 13,164 | 123,000 | 123,000 | ..... | 2.89 |
| 6 | Canton-Akron | [9] 4,183,326 | 4,183,326 | ..... | 2 | 83,383 | [9] 907,739 | [6] 887,739 | [6] 20,000 | 4.71 |
| 7 | Chillicothe Electric Railroad, Light and Power | 317,418 | 317,418 | ..... | ..... | 62,117 | 91,250 | 91,250 | ..... | 3.48 |
| 8 | Cincinnati Traction | 94,273,255 | 69,510,122 | 24,763,133 | 36 | 326,400 | 20,485,369 | 20,485,369 | ..... | 3.39 |
| 9 | Price Hill Incline Plane | 433,517 | 433,517 | ..... | ..... | 710,684 | [6] 144,506 | 144,506 | ..... | 3.00 |
| 10 | Mill Creek Valley | 2,525,680 | 2,020,544 | 505,136 | 3 | 55,357 | 1,084,639 | 1,084,639 | ..... | 1.86 |
| 11 | Cincinnati, Dayton and Toledo | 4,009,164 | 3,939,432 | 69,732 | 2 | 49,961 | 2,189,734 | 2,109,954 | 79,780 | 1.87 |
| 12 | Cincinnati, Lawrenceburg and Aurora | 1,100,141 | 1,100,141 | ..... | ..... | 28,029 | 625,296 | 625,296 | ..... | 1.76 |
| 13 | Cleveland Electric Railway | 63,013,331 | 47,234,146 | 15,779,185 | 7 | 329,571 | 11,274,917 | 11,274,917 | ..... | 4.19 |
| 14 | Cleveland City Railway | 39,364,394 | 34,136,056 | 5,228,338 | 7 | 360,923 | 7,493,598 | 7,493,598 | ..... | 4.56 |
| 15 | Cleveland, Elyria and Western | 4,122,480 | 2,296,280 | 1,826,200 | 4 | 30,017 | 1,186,017 | 1,127,617 | 58,400 | 2.04 |
| 16 | Eastern Ohio Traction | 714,401 | 714,401 | ..... | ..... | 7,073 | 689,781 | 689,781 | ..... | 1.04 |
| 17 | Cleveland, Painesville and Eastern | 1,537,754 | 1,437,754 | 100,000 | 3 | 33,235 | 779,447 | 779,447 | ..... | 1.84 |
| 18 | Northern Ohio Traction | 10,506,029 | 8,689,672 | 1,816,357 | 8 | 78,818 | 2,902,146 | 2,803,945 | 98,201 | 3.10 |
| 19 | Columbus Railway | 32,753,046 | 26,489,927 | 6,263,119 | 35 | 248,895 | 5,637,599 | 5,619,476 | 18,123 | 4.71 |
| 20 | Columbus, London and Springfield | [6] 200,501 | 200,501 | ..... | ..... | 2,762 | [6] 244,383 | 232,502 | 11,881 | .86 |
| 21 | Columbus, Buckeye Lake and Newark | [11] 597,570 | [6] 597,570 | ..... | ..... | 13,262 | [11] 450,000 | [6] 450,000 | ..... | 1.33 |
| 22 | City Railway | 8,864,006 | 7,346,171 | 1,517,835 | 5 | 276,692 | 2,310,823 | 2,310,823 | ..... | 3.18 |
| 23 | Peoples Railway | 6,474,726 | 4,781,332 | 1,693,394 | 4 | 210,631 | 1,649,722 | 1,649,722 | ..... | 2.90 |
| 24 | Oakwood Street | 3,352,359 | 2,539,591 | 812,768 | 2 | 321,467 | 708,981 | 708,981 | ..... | 3.58 |
| 25 | Dayton and Western | [6] 500,000 | 500,000 | ..... | ..... | 17,699 | 401,500 | 365,000 | 36,500 | 1.37 |
| 26 | Dayton and Northern | 586,910 | 586,910 | ..... | ..... | 12,935 | 540,020 | 490,100 | 49,920 | 1.19 |
| 27 | Dayton, Springfield and Urbana | 363,472 | 363,472 | ..... | 1 | 6,537 | [6] 181,736 | 181,736 | ..... | 2.00 |
| 28 | Dayton and Troy | 730,000 | 730,000 | ..... | ..... | 15,632 | 751,900 | 708,100 | 43,800 | 1.03 |
| 29 | Dayton and Xenia | 967,888 | 947,256 | 20,632 | 4 | 17,869 | 486,279 | 486,279 | ..... | 1.95 |
| 30 | Peoples Gas and Electric | 75,000 | 75,000 | ..... | ..... | 16,556 | 30,420 | 30,420 | ..... | 2.47 |
| 31 | Delaware Electric Railway | [12] 433,633 | 312,627 | 121,006 | 1 | 41,684 | [12] 167,200 | 167,200 | ..... | 1.87 |
| 32 | United Electric | 297,798 | 297,798 | ..... | ..... | 146,699 | 120,140 | 120,140 | ..... | 2.48 |
| 33 | East Liverpool Railway | 2,625,570 | 2,625,570 | ..... | ..... | 178,489 | 877,000 | 848,925 | 28,075 | 3.09 |
| 34 | Lancaster Traction | 482,872 | 472,872 | 10,000 | 1 | 124,113 | 164,660 | 164,660 | ..... | 2.87 |
| 35 | Lima Railway and Light | 1,632,221 | 1,375,979 | 256,242 | 1 | 66,958 | 486,980 | 486,980 | ..... | 2.83 |
| 36 | Western Ohio Railway | [12] 571,886 | 571,886 | ..... | ..... | 7,098 | [12] 511,389 | 443,192 | 68,197 | 1.29 |
| 37 | Lorain Street Railway | 2,152,300 | 2,152,300 | ..... | ..... | 184,430 | 421,312 | 421,312 | ..... | 5.11 |
| 38 | Mansfield Railway, Light and Power | 1,870,556 | 1,168,334 | 702,222 | 1 | 55,635 | 562,060 | 559,180 | 2,880 | 2.09 |
| 39 | Marion Street Railway | 565,536 | 557,036 | 8,500 | 1 | 130,149 | 258,420 | 258,420 | ..... | 2.16 |
| 40 | Mt. Vernon Electric Railway | 144,280 | 144,280 | ..... | ..... | 28,290 | 100,000 | 100,000 | ..... | 1.44 |
| 41 | Newark and Granville | 1,448,364 | 1,448,364 | ..... | ..... | 104,274 | 273,453 | 273,453 | ..... | 5.30 |
| 42 | Tuscarawas Traction | 1,028,099 | 1,028,099 | ..... | ..... | 76,552 | 365,100 | 365,100 | ..... | 2.82 |

[1] For 3 months only.
[2] For 11 months only.
[3] For 6½ months only
[4] Not reported.
[5] For 2½ months only.
[6] Estimated.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Total. | | Passengers. | | Employees. | | Others. | | |
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Number. |
| | | | | Yes | 10 | | | 1 | 10 | 1 | 2 | | | | 8 | 63 |
| | | | | No | 10 | | | | 10 | | 4 | | | | 6 | 64 |
| | | | | No | 8 | 30 | | | 5 | | 3 | | 2 | | | 65 |
| | | | | Yes | 10 | 15 | | | | | | | | | | 66 |
| | | | | No | 8 | | | | | | | | | | | 67 |
| 16,425 | 16,425 | | 58.31 | Yes | 10 | 22 | 1 | | 13 | | 8 | | 4 | | 1 | 68 |
| | | | | No | 10 | 25 | | | 2 | | 1 | | 1 | | | 69 |
| | | | | No | 5 | | | | | | | | | | | 70 |
| | | | | Yes | 10 | 18 | | 1 | 13 | | 4 | 1 | 9 | | | 71 |
| | | | | Yes | 6 | 6 | | | | | | | | | | 72 |
| 65,700 | 65,700 | | 12.85 | No | 8 | 10 | | | 3 | | 1 | | | | 2 | 73 |
| | | | | Yes | 8 | 16 | | 2 | | 1 | | | | 1 | | 74 |
| | | | | Yes | 12 | 20 | 1 | 1 | | | | | | 1 | | 75 |
| | | | | No | 8 | 14 | | | | | | | | | | 76 |
| | | | | No | 12 | 15 | | | | | | | | | | 77 |
| | | | | No | 8 | | | | | | | | | | | 78 |
| | | | | Yes | 11 | 15 | | 1 | | 1 | | | | | | 79 |
| 703,326 | 692,376 | 10,960 | 29.13 | Yes | 15 | 20 | | 2 | 17 | | 6 | | 5 | 2 | 6 | 80 |
| | | | | No | 12 | 15 | 1 | | | | | | | | | 81 |
| | | | | Yes | 15 | 30 | | | 2 | | 1 | | | | 1 | 82 |
| | | | | No | 10 | 15 | | | | | | | | | | 83 |
| | | | | No | 15 | | | | 3 | | | | | | 3 | 84 |
| | | | | No | 12 | 30 | 1 | 6 | | | | 1 | | 5 | | 85 |
| | | | | No | 7 | | | | | | | | | | | 86 |
| | | | | No | | 10 | | | | | | | | | | 87 |
| | | | | Yes | 15 | | 2 | 1 | 28 | | 15 | 1 | | | 13 | 88 |
| 33,555 | 31,755 | 1,800 | 45.14 | Yes | 8 | 12 | 1 | | 5 | | 1 | | | | 4 | 89 |
| | | | | No | 8 | 28 | | | | | | | | | | 90 |
| 599,816 | 599,816 | | 14.61 | Yes | 8 | 15 | 2 | 4 | 16 | | 14 | 1 | 1 | 3 | 1 | 91 |
| | | | | No | 10 | 20 | | 1 | | | | | | 1 | | 92 |
| | | | | No | 9 | 15 | | | 1 | | | | 1 | | | 93 |
| | | | | No | 15 | | | | | | | | | | | 94 |
| | | | | No | 20 | 50 | | 1 | 4 | | 3 | | 1 | 1 | | 95 |
| | | | | Yes | 20 | 20 | | | | | | | | | | 96 |
| 51,610 | 51,610 | | 22.49 | | | | 4 | 2 | 15 | | 7 | 1 | 6 | 1 | 2 | |
| | | | | No | 9 | 10 | 1 | | | | | | | | | 1 |
| | | | | No | 9 | 10 | | | 8 | | 7 | | | | 1 | 2 |
| | | | | No | 9 | 10 | 1 | | 6 | | | | 6 | | | 3 |
| [6]51,610 | 51,610 | | 22.49 | No | 12 | 15 | 1 | 1 | 1 | | | | | 1 | 1 | 4 |
| | | | | No | 6 | 12 | | | | | | | | | | 5 |
| | | | | No | 4 | | | | | | | | | | | 6 |
| | | | | No | 8 | 10 | 1 | 1 | | | | 1 | | | | 7 |
| [8]4,642,564 | 4,595,702 | 46,862 | 31.58 | | | | 25 | 116 | 4,069 | 19 | 1,808 | 9 | 326 | 88 | 1,935 | |
| 24,090 | 24,090 | | 41.50 | No | 9 | | | | 1 | | | | | | 1 | 1 |
| | | | | No | 8 | 20 | | | | | | | | | | 2 |
| | | | | Yes | 8 | 25 | 1 | | 1 | | | | | | 1 | 3 |
| | | | | No | 8 | | | | | | | | | | | 4 |
| | | | | Yes | 8 | 30 | | 1 | | | | | | 1 | | 5 |
| [9]138,355 | 134,443 | 3,912 | 31.12 | Yes | 8 | 30 | 1 | | 2 | | | | | | 2 | 6 |
| | | | | No | 12 | | | 1 | | 1 | | | | | | 7 |
| 2,229,066 | 2,229,066 | | 31.18 | Yes | [4] | [4] | | 15 | 197 | | 102 | | 31 | 15 | 64 | 8 |
| | | | | No | 6 | | | | | | | | | | | 9 |
| | | | | Yes | 8 | 15 | | | | | | | | | | 10 |
| | | | | Yes | 10 | 50 | 1 | 2 | 31 | | 13 | 1 | 1 | 1 | 17 | 11 |
| | | | | No | 12 | 40 | | 2 | 6 | | 2 | | | 2 | 4 | 12 |
| | | | | Yes | 12 | | | 12 | 579 | | 369 | | 52 | 12 | 158 | 13 |
| 821,250 | 821,250 | | 41.57 | Yes | 15 | | | 15 | 841 | | 200 | | 27 | 15 | 614 | 14 |
| 91,600 | 86,400 | 5,200 | 26.58 | Yes | 12 | 40 | 1 | 2 | 60 | | 27 | | 8 | 2 | 25 | 15 |
| | | | | Yes | 12 | 15 | | | 3 | | | | 1 | | 2 | 16 |
| | | | | Yes | 15 | 40 | 1 | 1 | 11 | | 4 | | | 1 | 7 | 17 |
| | | | | Yes | 12 | 40 | 1 | 5 | 216 | 3 | 199 | 2 | 17 | | | 18 |
| | | | | Yes | 8 | 20 | 1 | 10 | 869 | | | | | [10]10 | [10]869 | 19 |
| | | | | No | 12 | 35 | 1 | | 3 | | 3 | | | | | 20 |
| | | | | No | 8 | 30 | 1 | | 1 | | | | | | 1 | 21 |
| 241,814 | 241,814 | | 30.38 | No | 10 | 25 | | 2 | 24 | | 8 | | 3 | 2 | 13 | 22 |
| 159,332 | 159,332 | | 30.01 | Yes | 10 | | 1 | 3 | 22 | | 11 | | 1 | 3 | 10 | 23 |
| | | | | No | 10 | 15 | | | | | | | | | | 24 |
| 23,360 | 20,075 | 3,285 | 24.91 | Yes | 6 | 20 | | | | | | | | | | 25 |
| 30,024 | 26,280 | 3,744 | 22.10 | Yes | 10 | 50 | | 2 | | | | | | 2 | | 26 |
| | | | | Yes | 10 | 35 | 1 | | 17 | | 17 | | | | | 27 |
| 46,800 | 43,680 | 3,120 | 16.71 | Yes | 12 | 25 | 1 | | 5 | | | | | | 5 | 28 |
| 28,740 | 28,740 | | 32.96 | Yes | 10 | 25 | 1 | | 2 | | 2 | | | | | 29 |
| | | | | No | 6 | | | | 1 | | | | | | 1 | 30 |
| | | | | No | 12 | | | | | | | | | | | 31 |
| 19,710 | 19,710 | | 15.11 | Yes | 8 | | | | | | | | | | | 32 |
| 92,480 | 89,360 | 3,120 | 29.38 | No | 5 | 5 | | 2 | 18 | | 18 | | | 2 | | 33 |
| 35,040 | 35,040 | | 18.50 | No | 10 | | | | | | | | | | | 34 |
| | | | | No | 8 | | 1 | | 5 | | | | | | 5 | 35 |
| | | | | Yes | 12 | 25 | 1 | 3 | 63 | | 23 | 1 | 28 | 2 | 12 | 36 |
| 27,102 | 27,102 | | 79.41 | Yes | 12 | 55 | | | 20 | | 8 | | 7 | | 5 | 37 |
| | | | | No | 8 | 18 | 1 | | 2 | | 1 | | 1 | | | 38 |
| | | | | No | 15 | | | 1 | 7 | | 3 | | | 1 | 4 | 39 |
| | | | | No | 12 | 12 | 1 | | | | | | | | | 40 |
| | | | | Yes | 6 | 15 | | | | | | | | | | 41 |
| 26,985 | 26,985 | | 38.10 | Yes | 6 | 20 | 1 | | 2 | | | | 1 | | 1 | 42 |

[7] Includes 6 companies operating part of year.
[8] For 26 companies only, and includes 3 companies operating part of year.
[9] For 7 months only.
[10] Includes passengers and employees.
[11] For 9 months only.
[12] For 10 months only.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | OHIO—Continued. | | | | | | | | | |
| 43 | Ohio River Railway and Power | 751,857 | 751,857 | ..... | ..... | 57,746 | 270,417 | 270,417 | ..... | 2.78 |
| 44 | Portsmouth Street Railroad | 901,783 | 901,783 | ..... | ..... | 163,960 | 325,612 | 325,612 | ..... | 2.77 |
| 45 | Salem Electric Railway | 176,951 | 176,951 | ..... | 1 | 66,774 | 65,233 | 65,233 | ..... | 2.71 |
| 46 | Springfield Railway | 4,702,323 | 3,784,338 | 917,985 | 1 | 134,530 | 1,086,087 | 1,086,087 | ..... | 3.48 |
| 47 | Springfield and Xenia | [1]102,448 | 102,448 | ..... | ..... | 5,484 | [1]57,650 | 57,650 | ..... | 1.78 |
| 48 | Steubenville and Pleasant Heights | [2]117,636 | 117,636 | ..... | ..... | 38,194 | [2]23,373 | 23,373 | ..... | 5.03 |
| 49 | Steubenville Traction and Light | 1,380,200 | 1,380,200 | ..... | ..... | 107,997 | 387,191 | 387,191 | ..... | 3.57 |
| 50 | Electric Railway and Power | 482,000 | 482,000 | ..... | ..... | 65,757 | 91,980 | 91,980 | ..... | 5.24 |
| 51 | Tiffin, Fostoria and Eastern | 327,740 | 327,740 | ..... | ..... | 19,279 | 307,935 | 287,765 | 20,170 | 1.14 |
| 52 | Toledo Railways and Light | 24,941,744 | 20,104,076 | 4,837,668 | 33 | 205,605 | 5,517,484 | 5,517,484 | ..... | 3.64 |
| 53 | Toledo, Bowling Green and Southern | 1,896,155 | 1,896,155 | ..... | ..... | 36,207 | 549,325 | 549,325 | ..... | 3.45 |
| 54 | Toledo, Fostoria and Findlay | 420,787 | 420,787 | ..... | ..... | 24,351 | 278,026 | 278,026 | ..... | 1.51 |
| 55 | Toledo and Western | 330,695 | 330,695 | ..... | ..... | 4,685 | 401,203 | 302,203 | 99,000 | 1.09 |
| 56 | Lake Shore | 3,886,902 | 3,686,862 | 200,040 | 11 | 20,102 | 2,444,894 | 2,315,066 | 129,828 | 1.59 |
| 57 | Toledo and Maumee Valley | 731,539 | 731,539 | ..... | ..... | 26,126 | 462,999 | 396,857 | 66,142 | 1.84 |
| 58 | Wellston and Jackson Belt | 928,925 | 928,925 | ..... | ..... | 88,469 | 207,112 | 207,112 | ..... | 4.49 |
| 59 | Worthington, Clintonville and Columbus | 356,657 | 356,657 | ..... | ..... | 69,660 | [4]118,886 | 118,886 | ..... | 3.00 |
| 60 | Youngstown Park and Falls | 1,241,016 | 1,241,016 | ..... | ..... | 202,450 | 240,000 | 240,000 | ..... | 5.17 |
| 61 | Youngstown-Sharon Railway and Light | 3,337,148 | 3,192,998 | 144,150 | 1 | 75,574 | 892,230 | 885,833 | 6,397 | 3.60 |
| 62 | Mahoning Valley | 10,000,000 | 7,000,000 | 3,000,000 | 9 | 130,768 | 1,424,000 | 1,400,000 | 24,000 | 5.00 |
| 63 | Zanesville Electric Railway | [4]2,550,000 | 1,800,000 | 750,000 | 3 | 180,000 | 400,000 | 400,000 | ..... | 4.50 |
| | OREGON. | | | | | | | | | |
| | Total for state | 23,666,753 | 18,729,442 | 4,937,311 | 20 | 137,041 | 4,781,105 | 4,719,355 | 61,750 | 3.97 |
| 1 | Astoria Electric | 300,000 | 300,000 | ..... | ..... | 73,171 | 140,416 | 140,416 | ..... | 2.14 |
| 2 | Portland Railway | 6,928,887 | 5,731,044 | 1,197,843 | 5 | 189,833 | 1,452,087 | 1,415,587 | 36,500 | 4.05 |
| 3 | City and Suburban | 14,131,389 | 10,736,389 | 3,395,000 | 10 | 163,914 | 2,523,816 | 2,523,816 | ..... | 4.25 |
| 4 | Portland City and Oregon | 1,828,514 | 1,510,704 | 317,810 | 3 | 58,126 | 391,496 | 369,896 | 21,600 | 4.08 |
| 5 | Salem Light, Power and Traction | 470,963 | 444,305 | 26,658 | 2 | 37,180 | 265,990 | 265,990 | ..... | 1.67 |
| 6 | Union Street and Suburban | 7,000 | 7,000 | ..... | ..... | 2,545 | 7,300 | 3,650 | 3,650 | 1.92 |
| | PENNSYLVANIA. | | | | | | | | | |
| | Total for state | [6]678,785,599 | 642,513,812 | 36,271,787 | 271 | 258,983 | [5]133,501,699 | 132,935,671 | 566,028 | 4.83 |
| 1 | Lehigh Valley Traction | 16,514,538 | 14,114,538 | 2,400,000 | 6 | 94,849 | 3,776,796 | 3,776,796 | ..... | 3.74 |
| 2 | Philadelphia and Lehigh Valley | 1,527,449 | 1,512,449 | 15,000 | 1 | 30,219 | 565,747 | 565,747 | ..... | 2.67 |
| 3 | Allentown and Kutztown Traction | 1,058,039 | 1,058,039 | ..... | ..... | 48,093 | 295,688 | 292,360 | 3,328 | 3.62 |
| 4 | Altoona and Logan Valley | 5,521,699 | 4,759,279 | 762,420 | 3 | 173,065 | 1,184,195 | 1,184,195 | ..... | 4.02 |
| 5 | Bangor and East Bangor | [8]69,441 | 69,441 | ..... | ..... | 25,251 | [8]25,052 | 25,052 | ..... | 2.77 |
| 6 | Beaver Valley Traction | 3,434,315 | 3,037,060 | 397,255 | 1 | 134,980 | 768,927 | 768,927 | ..... | 3.95 |
| 7 | Riverview Electric Street Railway | [9]137,416 | 137,416 | ..... | ..... | 37,856 | [9]102,200 | 102,200 | ..... | 1.34 |
| 8 | Patterson Heights Street Railway | [4]28,154 | 28,154 | ..... | ..... | 62,564 | 2,008 | 2,008 | ..... | 14.02 |
| 9 | Columbia and Montour | 603,285 | 603,285 | ..... | ..... | 37,125 | 199,281 | 199,281 | ..... | 3.03 |
| 10 | Bradford Electric Street Railway | 1,036,342 | 936,342 | 100,000 | 1 | 81,634 | 238,819 | 238,819 | ..... | 3.92 |
| 11 | Butler Passenger Railway | 481,201 | 390,951 | 90,250 | 2 | 53,924 | 62,050 | 62,050 | ..... | 6.30 |
| 12 | Carlisle and Mt. Holly | 191,536 | 191,536 | ..... | ..... | 28,167 | 119,758 | 110,994 | 8,764 | 1.73 |
| 13 | Cumberland Valley Traction | 616,726 | 586,726 | 30,000 | 1 | 29,336 | 303,160 | 292,000 | 11,160 | 2.01 |
| 14 | Chester Traction | 7,222,412 | 6,572,412 | 650,000 | [10] | 204,940 | 1,300,000 | 1,300,000 | ..... | 5.06 |
| 15 | Media, Middletown, Aston and Chester | 1,171,074 | 1,171,074 | ..... | ..... | 61,798 | 577,265 | 577,265 | ..... | 2.03 |
| 16 | Philadelphia and Chester Railway | 331,421 | 331,421 | ..... | ..... | 38,007 | 202,192 | 202,192 | ..... | 1.64 |
| 17 | Connellsville Suburban | 400,000 | 400,000 | ..... | ..... | 160,000 | 102,000 | 102,000 | ..... | 3.92 |
| 18 | Newtown Electric Street Railway | 876,828 | 876,828 | ..... | ..... | 31,439 | 390,379 | 390,379 | ..... | 2.25 |
| 19 | Doylestown and Easton | [11]16,354 | 16,354 | ..... | ..... | 2,726 | [11]4,708 | 4,708 | ..... | 3.47 |
| 20 | Doylestown and Willow Grove | 1,040,866 | 1,023,707 | 17,159 | 1 | 76,510 | 274,116 | 274,116 | ..... | 3.73 |
| 21 | Dubois Traction | 356,249 | 356,249 | ..... | ..... | 265,857 | 34,008 | 34,008 | ..... | 10.48 |
| 22 | Easton and Nazareth | 557,440 | 557,440 | ..... | ..... | 55,744 | 248,930 | 248,930 | ..... | 2.24 |
| 23 | Erie Electric Motor | 6,888,234 | 4,616,125 | 2,272,109 | 6 | 164,862 | 1,259,540 | 1,259,540 | ..... | 3.66 |
| 24 | Erie Traction | 232,477 | 232,477 | ..... | ..... | 8,303 | 212,843 | 212,843 | ..... | 1.09 |
| 25 | Erie Rapid Transit | [12]394,769 | 383,979 | 10,790 | 1 | 23,999 | [12]122,885 | 122,885 | ..... | 3.12 |
| 26 | Franklin Electric Street Railway | 815,274 | 701,134 | 114,140 | 1 | 187,459 | 188,130 | 188,130 | ..... | 3.73 |
| 27 | Gettysburg Transit | 89,675 | 89,675 | ..... | ..... | 9,439 | 50,580 | 50,580 | ..... | 1.77 |
| 28 | Hanover and McSherrystown | 147,151 | 147,151 | ..... | ..... | 39,451 | 37,530 | 37,530 | ..... | 3.92 |
| 29 | Lehigh Traction | 2,643,711 | 2,632,761 | 10,950 | 1 | 131,048 | 540,526 | 530,632 | 9,894 | 4.96 |
| 30 | Harrisburg Traction | 10,589,161 | 8,727,334 | 1,861,827 | 10 | 178,109 | 1,865,097 | 1,859,463 | 5,634 | 4.69 |
| 31 | Harrisburg and Mechanicsburg | 1,048,668 | 985,414 | 63,254 | 3 | 64,196 | 167,524 | 161,728 | 5,796 | 6.09 |
| 32 | Cambria Incline Plane | 411,139 | 411,139 | ..... | ..... | 1,209,232 | 14,609 | 14,609 | ..... | 28.14 |
| 33 | Johnstown Passenger Railway | 6,017,942 | 5,470,856 | 547,086 | 3 | 174,788 | 1,168,091 | 1,168,091 | ..... | 4.68 |
| 34 | Kittanning and Ford City | 747,196 | 747,196 | ..... | ..... | 142,323 | 373,596 | 373,596 | ..... | 2.00 |
| 35 | Conestoga Traction | 5,515,401 | 4,967,901 | 547,500 | 5 | 59,276 | 1,504,140 | 1,504,140 | ..... | 3.30 |
| 36 | Lebanon Valley | 1,600,998 | 1,519,295 | 81,703 | 2 | 66,056 | 359,467 | 359,467 | ..... | 4.23 |
| 37 | Lewistown and Reedsville | 930,549 | 930,549 | ..... | ..... | 148,888 | 176,492 | 176,492 | ..... | 5.27 |
| 38 | Susquehanna Traction | 438,944 | 438,944 | ..... | ..... | 82,046 | 189,800 | 189,800 | ..... | 2.31 |
| 39 | Lykens and Williams Valley | 426,233 | 426,233 | ..... | ..... | 39,686 | 197,100 | 197,100 | ..... | 2.16 |
| 40 | Highland Grove | 197,629 | 197,629 | ..... | ..... | 65,440 | 30,000 | 30,000 | ..... | 6.59 |
| 41 | Schuylkill Traction | 2,582,286 | 2,582,286 | ..... | ..... | 92,224 | 793,440 | 793,440 | ..... | 3.25 |
| 42 | Mauch Chunk, Lehighton and Slatington | 554,239 | 474,479 | 79,760 | 2 | 35,973 | 227,028 | 227,028 | ..... | 2.09 |
| 43 | Meadville Traction | 806,025 | 806,025 | ..... | 1 | 73,275 | 191,625 | 191,625 | ..... | 4.21 |
| 44 | Lewisburg, Milton and Watsontown | 487,270 | 487,270 | ..... | ..... | 49,319 | 142,665 | 142,665 | ..... | 3.42 |
| 45 | Montoursville Passenger | 337,822 | 337,822 | ..... | ..... | 67,564 | 124,513 | 124,513 | ..... | 2.71 |
| 46 | New Castle Traction | 3,403,784 | 2,774,201 | 629,533 | 1 | 144,490 | 730,456 | 730,456 | ..... | 3.80 |
| 47 | New Castle and Lowell | [13]398,892 | 398,892 | ..... | ..... | 31,937 | [13]68,242 | 67,129 | 1,113 | 5.94 |
| 48 | Schuylkill Valley Traction | 5,719,797 | 5,138,821 | 580,976 | 6 | 100,152 | 1,595,610 | 1,595,610 | ..... | 3.22 |
| 49 | Lansdale and Norristown | [14]165,670 | 161,726 | 3,944 | 1 | 12,178 | [14]49,087 | 49,087 | ..... | 3.29 |
| 50 | Peoples Street Railway | 585,938 | 585,938 | ..... | ..... | 97,656 | 129,131 | 129,131 | ..... | 4.54 |
| 51 | Citizens Traction | 1,285,101 | 1,175,464 | 109,637 | 2 | 87,590 | 211,562 | 211,562 | ..... | 5.56 |
| 52 | Oil City Street Railway | 777,990 | 672,528 | 105,462 | 2 | 83,028 | 197,326 | 197,326 | ..... | 3.41 |
| 53 | Union Traction | 325,801,963 | 325,801,963 | ([10]) | 67 | 685,235 | 59,721,423 | 59,375,543 | 345,880 | 5.49 |
| 54 | Southwestern Street Railway | 776,191 | 776,191 | ..... | ..... | 48,573 | 309,944 | 309,944 | ..... | 2.50 |
| 55 | Philadelphia, Bristol and Trenton | 330,069 | 330,069 | ..... | ..... | 27,948 | 169,158 | 169,158 | ..... | 1.96 |

[1] For 5 months only.
[2] For 8 months only.
[3] Includes "others."
[4] Estimated.
[5] For 4 companies only.
[6] Includes 6 companies operating part of year.
[7] For 51 companies only, and includes 4 companies operating part of year.
[8] For 8½ months only.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. |
| | | | | Yes | 8 | 15 | | 1 | | | | | | 1 | |
| | | | | No | 4 | 6 | 1 | 1 | 4 | | 2 | | | 1 | 2 |
| 16,520 | 16,520 | | 10.71 | No | 8 | | | | | | | | | | |
| 148,689 | 148,689 | | 25.45 | No | 12 | | | 1 | 28 | 1 | 18 | | | | 10 |
| [1] 4,868 | 4,868 | | 21.04 | No | 12 | 40 | | | | | | | | | |
| [2] 4,080 | 4,080 | | 28.83 | No | 8 | | | | 2 | | 2 | | | | |
| 119,094 | 119,094 | | 11.59 | No | 10 | 25 | 1 | | 35 | | 19 | | 4 | | 12 |
| | | | | No | 12 | | 1 | | 1 | | | | 1 | | |
| 18,250 | 14,600 | 3,650 | 22.45 | No | 12 | 25 | | | | | | | | | |
| | | | | Yes | 8 | 20 | | 12 | 656 | [3] 12 | [3] 564 | | 92 | | |
| | | | | Yes | 10 | 30 | | 2 | 2 | | 2 | 1 | | 1 | |
| 14,139 | 14,139 | | 29.76 | Yes | 10 | 25 | 1 | | 7 | | 5 | | 2 | | |
| | | | | Yes | 4 | 23 | | | 1 | | 1 | | | | |
| 177,540 | 162,969 | 14,571 | 22.62 | Yes | 16 | 40 | 1 | 6 | 46 | | 24 | 2 | 10 | 4 | 12 |
| 43,636 | 37,376 | 6,260 | 19.57 | Yes | 8 | 30 | | | | | | | | | |
| | | | | Yes | 6 | 15 | 1 | | | | | | | | |
| | | | | No | | 10 | | 1 | 4 | | | | | 1 | 4 |
| | | | | No | 15 | 20 | 1 | 2 | 2 | | 2 | | | 2 | |
| | | | | No | 15 | 55 | | 3 | 88 | 1 | 50 | 1 | 12 | 1 | 26 |
| | | | | Yes | 15 | 25 | | 8 | 182 | 1 | 107 | 1 | 27 | 6 | 48 |
| 60,000 | 60,000 | | 30.00 | Yes | 8 | | | | 2 | | 2 | | | | |
| [6] 480,979 | 477,379 | 3,600 | 27.21 | | | | 1 | 9 | 63 | 3 | 33 | 1 | 3 | 5 | 27 |
| 22,112 | 22,112 | | 13.57 | No | 15 | | | | 1 | | | | | | 1 |
| | | | | Yes | 12 | | | 4 | 33 | 1 | 21 | | 2 | 3 | 10 |
| 338,392 | 338,392 | | 31.73 | Yes | 12 | 20 | 1 | 3 | 26 | 2 | 12 | | | 1 | 14 |
| 77,040 | 73,440 | 3,600 | 20.57 | Yes | 8 | 20 | | 2 | 3 | | | 1 | 1 | 1 | 2 |
| 43,435 | 43,435 | | 10.23 | No | 10 | 10 | | | | | | | | | |
| | | | | Yes | 10 | 15 | | | | | | | | | |
| [7] 3,679,314 | 3,674,665 | 4,649 | 32.16 | | | | 46 | 186 | 2,680 | 37 | 1,548 | 9 | 233 | 140 | 899 |
| 453,000 | 453,000 | | 31.16 | Yes | 8 | 20 | 2 | 4 | 201 | 2 | 119 | | 46 | 2 | 36 |
| 52,560 | 52,560 | | 28.78 | Yes | 8 | 30 | | 9 | 46 | 5 | 28 | 2 | 10 | 2 | 8 |
| 36,442 | 36,130 | 312 | 29.28 | Yes | 10 | 20 | 2 | | | | | | | | |
| 142,916 | 142,916 | | 33.30 | No | 12 | 20 | 1 | | 30 | | 8 | | 4 | | 18 |
| [8] 4,555 | 4,555 | | 15.25 | No | 8 | 15 | | | | | | | | | |
| | | | | Yes | 10 | 15 | 2 | | | | | | | | |
| | | | | No | 8 | | | | | | | | | | |
| | | | | Yes | 8 | | | | | | | | | | |
| | | | | No | 8 | 20 | | | | | | | | | |
| 30,660 | 30,660 | | 30.54 | No | 10 | 15 | 1 | | 2 | | 1 | | | | 1 |
| 31,025 | 31,025 | | 12.60 | No | 10 | 20 | 1 | | 2 | | | | | | 2 |
| | | | | Yes | 10 | 25 | 1 | | | | | | | | |
| 33,780 | 32,850 | 930 | 17.86 | Yes | 8 | 15 | 1 | | | | | | | | |
| 190,000 | 190,000 | | 34.59 | Yes | 8 | 12 | | 8 | 77 | | 48 | | 2 | 8 | 27 |
| | | | | No | 7 | 7 | | | 1 | | | | | | 1 |
| 22,363 | 22,363 | | 14.82 | No | 8 | 12 | | | 6 | | 4 | | | | 2 |
| | | | | No | 8 | 15 | | | 2 | | 1 | | | | 1 |
| 71,210 | 71,210 | | 12.31 | Yes | 8 | 14 | | | | | | | | | |
| [11] 750 | 750 | | 21.81 | No | 6 | 25 | | | | | | | | | |
| | | | | Yes | | 15 | | | | | | | | | |
| | | | | No | 6 | | 1 | | 3 | | | | 1 | | 2 |
| 26,072 | 26,072 | | 21.38 | No | 10 | 20 | 1 | 2 | 60 | 2 | 60 | | | | |
| 156,471 | 156,471 | | 29.50 | No | 10 | 20 | | 2 | 1 | | 1 | | | 2 | |
| 14,932 | 14,932 | | 15.57 | Yes | 6 | 40 | | | | | | | | | |
| [12] 10,120 | 10,120 | | 37.94 | No | 8 | 15 | | 3 | 4 | | 3 | | | 3 | 1 |
| | | | | No | 6 | | | | | | | | | | |
| 5,040 | 5,040 | | 17.79 | No | 8 | 12 | | | | | | | | | |
| 6,255 | 6,255 | | 23.53 | No | 8 | 12 | | | | | | | | | |
| 61,995 | 59,595 | 2,400 | 44.18 | Yes | 8 | 15 | 1 | | | | | | | | |
| 254,626 | 254,000 | 626 | 34.36 | Yes | 8 | 25 | 1 | 4 | 35 | | 19 | | 6 | 4 | 10 |
| 23,807 | 23,426 | 381 | 42.06 | Yes | 8 | 25 | | | | | | | | | |
| | | | | No | 3 | | | | | | | | | | |
| | | | | No | 12 | 20 | | | 20 | | 18 | | | | 2 |
| | | | | No | 8 | 12 | | | 2 | | | | | | 2 |
| 150,000 | 150,000 | | 33.12 | Yes | 7 | 12 | 2 | 3 | 19 | | 5 | | | 3 | 14 |
| 32,359 | 32,359 | | 46.95 | No | 7 | 15 | | | 11 | | 5 | | | | 6 |
| 24,284 | 24,284 | | 38.32 | No | 6 | 18 | 1 | | 2 | | | | | | 2 |
| 17,885 | 17,885 | | 24.54 | Yes | 7 | 15 | 1 | | 1 | | 1 | | | | |
| 19,710 | 19,710 | | 21.63 | No | 8 | 12 | 1 | | | | | | | | |
| | | | | No | 8 | | | | | | | | | | |
| 72,000 | 72,000 | | 35.87 | No | 6 | 12 | 1 | 1 | 23 | | 16 | | | 1 | 7 |
| 29,565 | 29,565 | | 16.05 | No | 6 | 10 | 1 | | | | | | | | |
| | | | | No | 8 | 8 | | | | | | | | | |
| | | | | No | 12 | 20 | 1 | | | | | | | | |
| | | | | No | 6 | 6 | 1 | | 1 | | 1 | | | | |
| 95,000 | 95,000 | | 29.20 | No | 8 | 10 | 1 | 1 | 29 | 1 | 26 | | 3 | | |
| | | | | No | 6 | 25 | | | 20 | | 12 | | 8 | | |
| 185,424 | 185,424 | | 27.71 | Yes | 8 | 14 | | 6 | 75 | 1 | 41 | | 6 | 5 | 28 |
| [14] 4,116 | 4,116 | | 39.29 | No | 12 | 12 | | | | | | | | | |
| | | | | Yes | 12 | 12 | | | 2 | | 2 | | | | |
| | | | | No | 6 | 15 | | | | | | | | | |
| | | | | No | 6 | 15 | | | | | | | | | |
| | | | | Yes | 7 | 10 | 1 | 42 | 300 | 9 | 239 | 2 | | 31 | 61 |
| 36,296 | 36,296 | | 21.39 | No | 8 | | | 1 | 39 | 1 | 25 | | 2 | | 12 |
| | | | | No | 3 | 3 | | | | | | | | | |

[9] For 10½ months only.
[10] Not reported.
[11] For 1 month only.
[12] For 10 months only.
[13] For 4½ months only.
[14] For 3½ months only.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | PENNSYLVANIA—Continued. | | | | | | | | | |
| 56 | Philadelphia and West Chester Traction | 653,575 | 653,575 | | | 27,142 | [1] 200,000 | 200,000 | | 3.27 |
| 57 | Holmesburg, Tacony and Frankford | 2,415,056 | 2,398,066 | 16,990 | 1 | 131,114 | 713,853 | 713,853 | | 3.36 |
| 58 | Fairmount Park Transportation | 2,328,465 | 2,328,465 | | | 264,598 | [1] 776,155 | 776,155 | | 3.00 |
| 59 | Delaware County and Philadelphia | 1,568,082 | 1,568,082 | | | 156,808 | 437,719 | 437,719 | | 3.58 |
| 60 | Montgomery and Chester | 310,827 | 310,827 | | | 55,804 | 125,120 | 125,120 | | 2.48 |
| 61 | Pittsburg Railways | 179,912,227 | 161,436,822 | 18,475,405 | 70 | 393,739 | 33,067,964 | 32,905,140 | 162,824 | 4.91 |
| 62 | St. Clair Incline Plane | 492,670 | 462,946 | 29,724 | 1 | 578,682 | 29,200 | 29,200 | | 15.85 |
| 63 | Duquesne Incline Plane | 1,095,984 | 482,240 | 613,744 | 1 | 1,607,467 | 14,000 | 14,000 | | 34.45 |
| 64 | Pittsburg and Castle Shannon | 802,204 | 578,374 | 223,830 | 1 | 1,112,258 | 31,937 | 31,937 | | 18.11 |
| 65 | Monongahela Incline Plane | 1,178,488 | 691,505 | 486,983 | 1 | 1,440,635 | 11,400 | 10,000 | 1,400 | 69.15 |
| 66 | Penn Incline Plane | 550,000 | 275,000 | 275 000 | 1 | 808,824 | 19,856 | 19,856 | | 13.85 |
| 67 | Pittsburg, McKeesport and Greensburg | 1,517,555 | 1,517,555 | | | 71,047 | 475,000 | 475,000 | | 3.19 |
| 68 | Pittsburg, McKeesport and Connellsville | 4,587,581 | 4,507,823 | 79,758 | 1 | 80,497 | 1,270,978 | 1,270,978 | | 3.55 |
| 69 | Pottstown Passenger Railway | 746,821 | 716,098 | 30,723 | 2 | 117,201 | 202,668 | 202,668 | | 3.53 |
| 70 | Ringing Rocks Electric | 202,836 | 202,836 | | | 53,378 | 71,540 | 71,540 | | 2.84 |
| 71 | Pottsville Union Traction | 3,657,750 | 3,373,400 | 284,350 | 3 | 78,818 | 1,047,592 | 1,047,592 | | 3.22 |
| 72 | Punxsutawney Street Railway | 988,555 | 988,555 | | | 81,497 | [1] 325,000 | [1] 325,000 | | 3.04 |
| 73 | United Traction | 9,869,900 | 9,171,891 | 698,009 | 22 | 144,576 | 2,231,733 | 2,231,733 | | 4.11 |
| 74 | Waverly, Sayre and Athens | 1,139,217 | 1,059,507 | 79,710 | 1 | 116,302 | 281,549 | 281,549 | | 3.76 |
| 75 | Neversink Mountain Railroad | 72,748 | 72,748 | | | 8,362 | 38,849 | 38,849 | | 1.87 |
| 76 | Mt. Penn Gravity Railway | 65,000 | 65,000 | | | 8,125 | 20,288 | 20,288 | | 3.20 |
| 77 | Scranton Railway | 9,806,343 | 8,331,663 | 1,474,680 | 20 | 108,655 | 2,322,162 | 2,322,162 | | 3.59 |
| 78 | Shamokin and Mt. Carmel | 1,964,461 | 1,964,461 | | | 96,534 | 319,800 | 319,800 | | 6.14 |
| 79 | Shamokin and Edgewood | 550,515 | 550,515 | | | 172,036 | 147,143 | 147,143 | | 3.74 |
| 80 | Stroudsburg Passenger | 121,161 | 121,161 | | | 44,059 | 25,040 | 25,040 | | 4.84 |
| 81 | Sunbury and Northumberland | 314,954 | 314,954 | | | 80,757 | 124,100 | 124,100 | | 2.54 |
| 82 | Tamaqua and Lansford | 1,049,427 | 1,029,903 | 19,524 | 1 | 70,397 | 266,048 | 266,048 | | 3.87 |
| 83 | Tarentum Traction Passenger | 622,447 | 622,447 | | | 94,167 | 173,842 | 173,842 | | 3.58 |
| 84 | Titusville Electric Traction | 520,000 | 520,000 | | | 43,333 | 149,000 | 140,000 | 9,000 | 3.71 |
| 85 | Warren Street Railway | 1,451,974 | 1,342,974 | 109,000 | 3 | 67,149 | 474,500 | 474,500 | | 2.83 |
| 86 | Washington Electric Railway | 1,003,828 | 1,003,828 | | | 307,923 | 104,390 | 104,390 | | 9.62 |
| 87 | West Chester Street Railway | 244,908 | 235,783 | 9,125 | 1 | 40,236 | 107,310 | 107,310 | | 2.20 |
| 88 | Wilkesbarre and Wyoming Valley | 13,693,909 | 13,098,909 | 595,000 | [2] | 196,739 | 2,512,143 | 2,512,143 | | 5.21 |
| 89 | Wilkesbarre, Dallas and Harveys Lake | 917,024 | 917,024 | | | 55,577 | 165,000 | 165,000 | | 5.56 |
| 90 | Vallamont Traction | 507,044 | 297,032 | 210,012 | 2 | 80,279 | 91,755 | 91,755 | | 3.24 |
| 91 | South Side Passenger Railway | 416,299 | 243,557 | 172,742 | 1 | 119,979 | 94,577 | 94,577 | | 2.58 |
| 92 | Williamsport Passenger Railway | 2,339,074 | 1,912,005 | 427,069 | 5 | 221,297 | 419,247 | 419,247 | | 4.56 |
| 93 | East End Passenger Railway | 159,357 | 129,703 | 29,654 | 1 | 52,940 | 62,568 | 62,568 | | 2.07 |
| 94 | Red Lion and Windsor | [1] 8,912 | 8,912 | | | 4,456 | 3,960 | 3,960 | | 2.25 |
| 95 | Yardley, Morrisville and Trenton | 131,858 | 131,858 | | | 22,013 | 73,273 | 73,273 | | 1.80 |
| 96 | York and Dover Electric | 74,866 | 74,866 | | | 8,263 | 42,997 | 42,997 | | 1.74 |
| 97 | York and Dallastown Electric | 169,938 | 169,938 | | | 22,903 | 70,365 | 70,365 | | 2.42 |
| 98 | York Street Railway | 2,220,836 | 1,770,836 | 450,000 | 2 | 144,558 | 463,639 | 462,404 | 1,235 | 3.83 |
| | RHODE ISLAND. | | | | | | | | | |
| | Total for state | [3] 62,394,165 | 62,279,165 | 115,000 | 3 | 189,356 | [3] 12,296,893 | 12,173,911 | 122,982 | 5.12 |
| 1 | Sea View Railroad | 700,378 | 700,378 | | | 37,096 | 150,840 | 150,840 | | 4.64 |
| 2 | Pawtucket Street Railway | 3,665,635 | 3,665,635 | | | 185,978 | 843,199 | 843,199 | | 4.35 |
| 3 | Union Railroad | 45,163,704 | 45,163,704 | | | 320,128 | 8,051,037 | 8,016,662 | 34,375 | 5.63 |
| 4 | Rhode Island Suburban | 5,129,222 | 5,129,222 | | | 75,352 | 1,368,256 | 1,324,649 | 43,607 | 3.87 |
| 5 | Providence and Danielson | 651,276 | 651,276 | | | 22,836 | 295,000 | 250,000 | 45,000 | 2.61 |
| 6 | New York, New Haven and Hartford | 4,520,894 | 4,520,894 | | | 143,520 | 1,123,270 | 1,123,270 | | 4.02 |
| 7 | Pawcatuck Valley Railway | [4] 360,043 | 360,043 | | | 57,792 | [4] 90,011 | [1] 90,011 | | 4.00 |
| 8 | Woonsocket Street Railway | 2,203,013 | 2,088,013 | 115,000 | 3 | 93,465 | 375,280 | 375,280 | | 5.56 |
| | SOUTH CAROLINA. | | | | | | | | | |
| | Total for state | 10,748,724 | 9,056,818 | 1,691,906 | 27 | 117,652 | 2,520,231 | 2,502,844 | 17,387 | 3.62 |
| 1 | North Augusta Electric and Improvement | 115,054 | 115,054 | | | 34,040 | 19,800 | 19,800 | | 5.81 |
| 2 | Charleston Railway, Gas and Electric | 6,985,655 | 5,952,395 | 1,033,260 | 20 | 172,934 | 1,577,320 | 1,577,320 | | 3.77 |
| 3 | Columbia Railway, Light and Power | 2,108,042 | 1,638,357 | 469,685 | 2 | 117,025 | 494,366 | 494,366 | | 3.31 |
| 4 | Greenville Traction | 700,564 | 537,603 | 162,961 | 2 | 76,800 | 152,518 | 152,518 | | 3.52 |
| 5 | Orangeburg City Street Railway | 23,800 | 23,800 | | | 12,727 | 19,055 | 6,570 | 12,485 | 3.62 |
| 6 | Rock Hill Water, Light and Railway | 12,000 | 12,000 | | | 9,160 | 8,668 | 8,668 | | 1.38 |
| 7 | Spartanburg Railway, Gas and Electric | 803,609 | 777,609 | 26,000 | 3 | 48,601 | 248,504 | 243,602 | 4,902 | 3.19 |
| | SOUTH DAKOTA. | | | | | | | | | |
| | Total for state | | | | | | | | | |
| 1 | Rapid City Street Railway [6] | | | | | | | | | |
| | TENNESSEE. | | | | | | | | | |
| | Total for state | 45,476,511 | 35,697,835 | 9,778,676 | 40 | 140,432 | 10,138,603 | 10,134,919 | 3,684 | 3.52 |
| 1 | Bristol Belt Line | 160,674 | 160,674 | | | 37,806 | 86,400 | 86,400 | | 1.86 |
| 2 | Chattanooga Electric Railway | 4,058,824 | 3,329,000 | 729,824 | 1 | 86,738 | 1,273,000 | 1,273,000 | | 2.62 |
| 3 | Rapid Transit of Chattanooga | 2,131,134 | 2,040,678 | 90,456 | 6 | 53,005 | [1] 680,226 | 680,226 | | 3.00 |
| 4 | Electric Railway of Clarksville | 300,000 | 300,000 | | | 54,545 | 111,690 | 111,690 | | 2.69 |
| 5 | Jackson and Suburban | 322,865 | 302,686 | 20,179 | 2 | 94,886 | 245,280 | 245,280 | | 1.23 |
| 6 | Knoxville Traction | 2,804,059 | 2,453,780 | 350,279 | | 94,376 | 1,015,341 | 1,015,341 | | 2.42 |
| 7 | Memphis Street Railway | 19,254,313 | 16,598,823 | 2,655,490 | 18 | 230,924 | 3,653,631 | 3,653,631 | | 4.54 |
| 8 | Nashville Railway | 16,444,642 | 10,512,194 | 5,932,448 | 13 | 158,078 | 3,073,035 | 3,069,351 | 3,684 | 3.42 |
| | TEXAS. | | | | | | | | | |
| | Total for state | [3] 32,165,682 | 30,037,966 | 2,127,716 | 12 | 99,047 | [3] 9,804,017 | 9,750,779 | 53,238 | 3.08 |
| 1 | Austin Electric Railway | 1,213,703 | 1,213,703 | | | 90,710 | 560,000 | 560,000 | | 2.17 |
| 2 | Bonham Electric Railway, Light and Power | 147,785 | 147,785 | | | 56,192 | 34,300 | 34,300 | | 4.31 |
| 3 | Dallas Consolidated | 6,165,738 | 5,618,238 | 547,500 | 1 | 162,189 | 1,693,112 | 1,693,112 | | 3.32 |

[1] Estimated.
[2] Not reported.
[3] Includes 1 company operating part of year.
[4] For 6 months only.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | | Number. |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | |
| | | | | Yes | | 13 | 1 | | 15 | | 8 | | 7 | | | 56 |
| 70,065 | 70,065 | | 34.23 | No | 10 | | | 1 | 30 | 1 | 10 | | 3 | | 17 | 57 |
| 52,640 | 52,640 | | 44.23 | No | 8 | | | | | | | | | | | 58 |
| 42,894 | 42,894 | | 36.56 | No | 12 | 18 | | | 11 | | 1 | | 2 | | 8 | 59 |
| | | | | No | 8 | 15 | | | | | | | | | | 60 |
| | | | | Yes | 15 | 30 | 2 | 79 | 1,054 | 14 | 496 | 4 | 104 | 61 | 454 | 61 |
| | | | | No | 4 | | | | | | | | | | | 62 |
| | | | | No | 4 | | | | | | | | | | | 63 |
| | | | | No | 14 | | | | | | | | | | | 64 |
| | | | | No | 22 | | | | | | | | | | | 65 |
| | | | | No | 3 | | | | | | | | | | | 66 |
| | | | | No | 10 | 27 | 1 | 2 | 2 | | | | | 2 | 2 | 67 |
| | | | | Yes | 10 | 15 | 1 | 7 | 103 | 1 | 56 | 1 | 12 | 5 | 35 | 68 |
| 25,556 | 25,556 | | 28.02 | Yes | 6 | 10 | 1 | 1 | 16 | | 16 | | | 1 | | 69 |
| | | | | No | 5 | 7 | 1 | | | | | | | | | 70 |
| 118,082 | 118,082 | | 28.57 | Yes | 8 | 15 | 1 | | 9 | | 5 | | | | 4 | 71 |
| | | | | Yes | 8 | 12 | 1 | 1 | | | | | | 1 | | 72 |
| 239,440 | 239,440 | | 38.31 | No | 7 | 10 | 1 | 3 | 68 | | 38 | | 3 | 3 | 27 | 73 |
| | | | | Yes | 15 | | | | 1 | | 1 | | | | | 74 |
| 5,884 | 5,884 | | 12.36 | No | 7 | 10 | | | | | | | | | | 75 |
| 8,640 | 8,640 | | 7.52 | No | | 12 | 1 | | | | | | | | | 76 |
| 334,020 | 334,020 | | 24.94 | Yes | 8 | 14 | | | 122 | | 73 | | 9 | | 40 | 77 |
| 41,610 | 41,610 | | 47.21 | No | 6 | 15 | 1 | | | | | | | | | 78 |
| 18,767 | 18,767 | | 29.33 | No | 8 | 10 | 1 | | | | | | | | | 79 |
| 5,758 | 5,758 | | 21.04 | Yes | 10 | | | | | | | | | | | 80 |
| 12,045 | 12,045 | | 26.15 | No | 8 | 12 | | | | | | | | | | 81 |
| 39,420 | 39,420 | | 26.13 | Yes | 6 | 15 | 1 | | | | | | | | | 82 |
| | | | | No | 15 | | | | | | | | | | | 83 |
| | | | | Yes | 10 | 15 | | | | | | | | | | 84 |
| 45,625 | 45,625 | | 29.44 | No | 6 | 15 | 1 | | 3 | | 2 | | 1 | | | 85 |
| | | | | No | 6 | | | | | | | | | | | 86 |
| | | | | Yes | 8 | 15 | 1 | | | | | | | | | 87 |
| 303,220 | 303,220 | | 43.20 | No | 8 | 15 | 1 | 5 | 193 | | 131 | | 4 | 5 | 58 | 88 |
| 13,140 | 13,140 | | 69.79 | No | 8 | 14 | 1 | 1 | 34 | | 28 | | | 1 | 6 | 89 |
| | | | | No | 8 | 8 | 1 | | | | | | | | | 90 |
| | | | | No | 8 | 8 | | | | | | | | | | 91 |
| | | | | No | 8 | | | | | | | | | | | 92 |
| | | | | No | 8 | 8 | | | | | | | | | | 93 |
| 720 | 720 | | 12.38 | No | 8 | 25 | | | | | | | | | | 94 |
| 6,570 | 6,570 | | 20.07 | No | 8 | 15 | | | 5 | | | | | | 5 | 95 |
| | | | | Yes | 7 | 12 | | | | | | | | | | 96 |
| | | | | Yes | 7 | 12 | | | | | | | | | | 97 |
| | | | | No | 7 | 12 | 1 | | | | | | | | | 98 |
| 36,500 | 29,200 | 7,300 | 22.30 | | | | | 17 | 190 | | 135 | 2 | 11 | 15 | 44 | |
| | | | | No | | 25 | | 1 | | | | 1 | | | | 1 |
| | | | | No | 12 | | | 1 | 11 | | 3 | | 2 | 1 | 6 | 2 |
| | | | | Yes | 12 | 25 | | 11 | 145 | | 111 | 1 | 1 | 10 | 33 | 3 |
| | | | | Yes | 12 | 25 | | 2 | 17 | | 9 | | 5 | 2 | 3 | 4 |
| 36,500 | 29,200 | 7,300 | 22.30 | Yes | 12 | 12 | | 1 | 4 | | 3 | | 1 | 1 | | 5 |
| | | | | Yes | | | | | | | | | | | | 6 |
| | | | | Yes | 8 | 8 | | | | | | | | | | 7 |
| | | | | Yes | 8 | 20 | | 1 | 13 | | 9 | | 2 | 1 | 2 | 8 |
| [5]49,418 | 49,418 | | 26.61 | | | | 4 | 4 | 100 | 1 | 36 | | 24 | 3 | 40 | |
| | | | | No | 10 | 10 | 1 | | 2 | | 2 | | | | | 1 |
| | | | | Yes | 8 | 15 | | 1 | 80 | | 29 | | 22 | 1 | 29 | 2 |
| | | | | No | 15 | 20 | 2 | 1 | 17 | 1 | 5 | | 2 | | 10 | 3 |
| 23,156 | 23,156 | | 23.22 | No | 15 | 15 | | | | | | | | | | 4 |
| | | | | No | | | | | | | | | | | | 5 |
| | | | | No | 6 | | | | | | | | | | | 6 |
| 26,262 | 26,262 | | 29.61 | Yes | 15 | 15 | 1 | 2 | 1 | | | | | 2 | 1 | 7 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 1 |
| [7]783,405 | 779,755 | 3,650 | 21.28 | | | | 8 | 21 | 550 | 3 | 247 | 6 | 86 | 12 | 217 | |
| | | | | No | 6 | 12 | | | | | | | | | | 1 |
| 164,980 | 164,250 | 730 | 20.27 | Yes | 8 | 15 | 1 | 3 | 30 | 1 | 15 | 1 | 3 | 1 | 12 | 2 |
| | | | | No | 10 | 25 | | 4 | 36 | | 30 | 3 | 3 | 1 | 3 | 3 |
| 18,615 | 18,615 | | 16.12 | No | 8 | 15 | 2 | | | | | | | | | 4 |
| | | | | No | 8 | | 2 | | 1 | | | | 1 | | | 5 |
| 136,990 | 136,990 | | 17.91 | No | 8 | 12 | 2 | 2 | 35 | | 5 | 1 | 14 | 1 | 16 | 6 |
| | | | | Yes | 15 | 20 | | 6 | 96 | 2 | 40 | | 5 | 4 | 51 | 7 |
| 462,820 | 459,900 | 2,920 | 22.86 | Yes | 9 | 14 | 1 | 6 | 352 | | 157 | 1 | 60 | 5 | 135 | 8 |
| [8]1,147,571 | 1,139,293 | 8,278 | 22.41 | | | | 7 | 7 | 424 | 2 | 277 | 1 | 48 | 4 | 99 | |
| 67,000 | 67,000 | | 18.11 | No | 10 | | 1 | 1 | 3 | | | | 2 | 1 | 1 | 1 |
| 6,570 | 6,570 | | 22.49 | No | 10 | 15 | | | | | | | | | | 2 |
| 230,038 | 230,038 | | 24.42 | No | 20 | 20 | | 1 | 60 | | 25 | | 6 | 1 | 29 | 3 |

[5] For 2 companies only.
[6] This company failed to make a report.
[7] For 4 companies only.
[8] For 13 companies only, and includes 1 company operating part of year.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY. | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | TEXAS—Continued. | | | | | | | | | |
| 4 | Rapid Transit | 956,535 | 956,535 | ..... | ..... | 73,580 | 516,110 | 516,110 | ..... | 1.85 |
| 5 | Denison and Sherman | 1,060,000 | 1,060,000 | ..... | ..... | 65,432 | 338,860 | 338,860 | ..... | 3.13 |
| 6 | El Paso Electric Railway | 2,154,035 | 1,945,196 | 208,839 | 1 | 144,302 | 310,521 | 310,521 | ..... | 6.26 |
| 7 | Northern Texas Traction | 2,450,558 | 2,450,558 | ..... | ..... | 39,717 | 996,597 | 996,597 | ..... | 2.46 |
| 8 | Galveston Street Railway | 2,851,603 | 2,851,603 | ..... | ..... | 79,520 | 1,070,202 | 1,070,202 | ..... | 2.66 |
| 9 | Houston Electric | 6,314,529 | 6,314,529 | ..... | ..... | 169,745 | 1,463,620 | 1,463,620 | ..... | 4.32 |
| 10 | Laredo Electric and Railway | 72,500 | 72,500 | ..... | ..... | 25,439 | 37,974 | 37,974 | ..... | 1.91 |
| 11 | Longview and Junction | 35,400 | 35,400 | ..... | ..... | 56,190 | 13,687 | 13,687 | ..... | 2.59 |
| 12 | Paris Transit | [1] 400,000 | 350,000 | 50,000 | 1 | 70,000 | [1] 112,320 | 112,320 | ..... | 3.12 |
| 13 | San Antonio Traction | 6,407,504 | 5,268,627 | 1,138,877 | 8 | 115,769 | 1,895,102 | 1,841,864 | 53,238 | 2.86 |
| 14 | Seguin Street Railway | 14,000 | 14,000 | ..... | ..... | 9,333 | [2] 4,667 | 4,667 | ..... | 3.00 |
| 15 | Citizens Railway | 1,788,025 | 1,605,525 | 182,500 | 1 | 98,559 | 690,215 | 690,215 | ..... | 2.33 |
| 16 | Waxahachie Street Railway | 70,244 | 70,244 | ..... | ..... | 14,819 | 33,365 | 33,365 | ..... | 2.11 |
| 17 | Lake Park Street Railroad | 63,523 | 63,523 | ..... | ..... | 13,401 | 33,365 | 33,365 | ..... | 1.90 |
| | UTAH. | | | | | | | | | |
| | Total for state | 13,799,819 | 11,493,501 | 2,306,318 | 7 | 129,082 | 3,047,222 | 3,047,122 | 100 | 3.77 |
| 1 | Ogden Rapid Transit | 1,056,910 | 861,910 | 195,000 | 2 | 78,355 | 292,100 | 292,000 | 100 | 2.95 |
| 2 | Consolidated Railway and Power | 12,667,909 | 10,556,591 | 2,111,318 | 5 | 140,755 | 2,741,082 | 2,741,082 | ..... | 3.85 |
| 3 | Salt Lake and Utah Valley | 75,000 | 75,000 | ..... | ..... | 24,671 | 14,040 | 14,040 | ..... | 5.34 |
| | VERMONT. | | | | | | | | | |
| | Total for state | 4,561,523 | 4,274,806 | 286,717 | 6 | 53,070 | 1,412,528 | 1,288,965 | 123,563 | 3.32 |
| 1 | Barre and Montpelier | 756,471 | 710,334 | 46,137 | 1 | 80,537 | 234,904 | 234,904 | ..... | 3.02 |
| 2 | Bellows Falls and Saxtons River | 141,196 | 141,196 | ..... | ..... | 21,590 | 96,990 | 87,600 | 9,390 | 1.61 |
| 3 | Brattleboro Street Railway | 364,987 | 364,987 | ..... | ..... | 72,997 | 100,683 | 97,344 | 3,339 | 3.75 |
| 4 | Burlington Traction | 1,414,535 | 1,270,136 | 144,399 | 3 | 113,203 | 292,000 | 292,000 | ..... | 4.35 |
| 5 | Rutland Street Railway | 1,059,408 | 976,908 | 82,500 | 1 | 93,484 | 202,886 | 202,886 | ..... | 4.82 |
| 6 | St. Albans Street Railway | 307,783 | 294,102 | 13,681 | 1 | 21,785 | 197,139 | 183,960 | 13,179 | 1.60 |
| 7 | Springfield Electric Railway | 95,320 | 95,320 | ..... | ..... | 10,463 | 150,590 | 62,794 | 87,796 | 1.52 |
| 8 | Mt. Mansfield Electric Railway | 107,680 | 107,680 | ..... | ..... | 9,572 | 44,908 | 35,049 | 9,859 | 3.07 |
| 9 | Military Post Railway | 314,143 | 314,143 | ..... | ..... | 67,413 | 92,428 | 92,428 | ..... | 3.40 |
| | VIRGINIA. | | | | | | | | | |
| | Total for state | [4] 52,369,902 | 44,275,661 | 8,094,241 | 113 | 127,562 | [4] 12,335,072 | 12,304,104 | 30,968 | 3.60 |
| 1 | Charlottesville City and Suburban | 480,112 | 457,792 | 22,320 | 1 | 123,728 | 119,330 | 119,330 | ..... | 3.84 |
| 2 | Danville Railway and Electric | 1,137,358 | 1,073,035 | 64,323 | 2 | 202,459 | 275,033 | 275,033 | ..... | 3.90 |
| 3 | Washington, Arlington and Falls Church | 865,980 | 865,980 | ..... | ..... | 72,649 | 228,190 | 219,000 | 9,190 | 3.95 |
| 4 | Lynchburg Traction and Light | 2,004,589 | 1,822,349 | 182,240 | 5 | 117,571 | 563,859 | 563,859 | ..... | 3.23 |
| 5 | Citizens Railway, Light and Power | 1,006,989 | 986,989 | 20,000 | 9 | 103,567 | 202,737 | 202,737 | ..... | 4.87 |
| 6 | Newport News and Old Point Railway and Electric | 4,904,412 | 4,154,412 | 750,000 | 9 | 104,199 | 729,885 | 715,845 | 14,040 | 5.80 |
| 7 | Bay Shore Terminal | [6] 36,779 | 36,779 | ..... | ..... | 3,065 | [6] 28,080 | 28,080 | ..... | 1.31 |
| 8 | Norfolk and Atlantic Terminal | 1,102,376 | 1,102,376 | ..... | ..... | 57,898 | 372,975 | 372,975 | ..... | 2.96 |
| 9 | Berkley Street Railway | [7] 586,791 | 586,791 | ..... | ..... | 41,121 | [7] 140,226 | 140,226 | ..... | 4.18 |
| 10 | Norfolk Railway and Light | 7,823,052 | 7,227,508 | 595,544 | 30 | 136,291 | 1,894,945 | 1,894,945 | ..... | 3.81 |
| 11 | Southside Railway and Development | 1,399,118 | 1,248,059 | 151,059 | 6 | 97,125 | 541,503 | 541,503 | ..... | 2.30 |
| 12 | Richmond and Petersburg Electric | [8] 109,934 | 109,934 | ..... | ..... | 4,763 | [8] 91,098 | 91,098 | ..... | 1.21 |
| 13 | Old Dominion Railway | (9) | ..... | ..... | ..... | ..... | (9) | ..... | ..... | ..... |
| 14 | Norfolk, Portsmouth and Newport News | 1,293,510 | 1,102,410 | 191,100 | 3 | 127,742 | 492,750 | 492,750 | ..... | 2.24 |
| 15 | Radford Water Power | 126,914 | 126,914 | ..... | ..... | 42,589 | 64,240 | 64,240 | ..... | 1.98 |
| 16 | Richmond Traction | 8,053,441 | 6,795,946 | 1,257,495 | 16 | 286,628 | 2,248,624 | 2,248,624 | ..... | 3.02 |
| 17 | Richmond Passenger and Power | 12,411,005 | 9,517,614 | 2,893,391 | 21 | 348,248 | 1,873,533 | 1,873,533 | ..... | 5.08 |
| 18 | Virginia Passenger and Power | 6,066,982 | 4,184,313 | 1,882,669 | 10 | 111,285 | 1,349,461 | 1,349,461 | ..... | 3.10 |
| 19 | Roanoke Railway and Electric | 1,256,292 | 1,172,192 | 84,100 | 1 | 61,565 | 451,111 | 451,111 | ..... | 2.60 |
| 20 | Tazewell Street Railway | 18,500 | 18,500 | ..... | ..... | 9,250 | 5,840 | 5,840 | ..... | 3.17 |
| 21 | Washington, Alexandria and Mt. Vernon | 1,685,768 | 1,685,768 | ..... | ..... | 65,239 | 661,652 | 653,914 | 7,738 | 2.58 |
| | WASHINGTON. | | | | | | | | | |
| | Total for state | 42,533,743 | 41,544,228 | 989,515 | 57 | 181,471 | 8,378,420 | 8,285,417 | 93,003 | 5.01 |
| 1 | Everett Railway and Electric | 1,246,940 | 971,650 | 275,290 | 2 | 100,689 | 193,836 | 193,836 | ..... | 5.01 |
| 2 | Olympia Light and Power | 200,870 | 200,870 | ..... | ..... | 48,055 | 106,752 | 92,980 | 13,772 | 2.16 |
| 3 | Seattle Electric | 26,525,701 | 26,525,701 | (9) | 33 | 318,857 | 4,615,402 | 4,588,281 | 27,121 | 5.78 |
| 4 | Seattle and Renton | 593,873 | 593,873 | ..... | ..... | 44,820 | 258,055 | 238,710 | 19,345 | 2.49 |
| 5 | Washington Water Power | 5,476,082 | 4,876,829 | 599,253 | 1 | 146,013 | 1,129,337 | 1,129,337 | ..... | 4.32 |
| 6 | Spokane and Montrose Motor | 151,569 | 151,569 | ..... | ..... | 48,114 | 54,845 | 54,845 | ..... | 2.76 |
| 7 | Tacoma Railway and Power | [5] 6,923,981 | 6,923,981 | (9) | 18 | 100,188 | 1,751,830 | 1,726,790 | 25,040 | 4.01 |
| 8 | Northern Railway and Improvement | 1,414,737 | 1,299,765 | 114,972 | 3 | 99,982 | 268,363 | 260,638 | 7,725 | 4.99 |
| | WEST VIRGINIA. | | | | | | | | | |
| | Total for state | [11] 22,183,794 | 21,706,870 | 476,924 | 3 | 155,049 | [11] 6,734,171 | 6,734,171 | ..... | 3.22 |
| 1 | Kanawha Valley Traction | 288,729 | 288,729 | ..... | ..... | 40,438 | 82,000 | 82,000 | ..... | 3.52 |
| 2 | East Liverpool and Rock Springs | 1,110,746 | 1,110,746 | ..... | ..... | 290,771 | 151,678 | 151,678 | ..... | 7.32 |
| 3 | Fairmont and Clarksburg | 1,186,133 | 1,186,133 | ..... | ..... | 167,061 | [2] 598,066 | 593,066 | ..... | 2.00 |
| 4 | Camden Interstate Railway | 4,219,383 | 4,219,383 | ..... | ..... | 139,576 | [2] 2,109,692 | 2,109,692 | ..... | 2.00 |
| 5 | Parkersburg, Marietta and Interurban | 2,500,000 | 2,400,000 | 100,000 | 2 | 81,356 | 630,720 | 630,720 | ..... | 3.81 |
| 6 | Wheeling and Wellsburg | 197,000 | 197,000 | ..... | ..... | 111,299 | 81,500 | 81,500 | ..... | 2.42 |
| 7 | Wheeling Traction | [13] 10,041,803 | 9,664,879 | 376,924 | 1 | 215,975 | [13] 2,205,515 | 2,205,515 | ..... | 4.38 |
| 8 | Wheeling and Elm Grove | [3] 2,640,000 | 2,640,000 | ..... | ..... | 162,462 | [3] 880,000 | 880,000 | ..... | 3.00 |

[1] For 7 months only.
[2] Estimated.
[3] For 3 companies only.
[4] For 20 companies only, and includes 3 companies operating part of year.
[5] For 18 companies only, and includes 3 companies operating part of year.
[6] For 1¼ months only.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | | Number. |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | |
| 78,840 | 78,840 | ..... | 12.13 | No. | 12 | 12 | 1 | ..... | 19 | ..... | 11 | ..... | 3 | ..... | 5 | 4 |
| 45,898 | 45,898 | ..... | 23.10 | No. | 10 | 25 | 2 | ..... | 1 | ..... | 1 | ..... | ..... | ..... | ..... | 5 |
| 41,402 | 41,402 | ..... | 46.98 | No. | 15 | 15 | ..... | 1 | 87 | 1 | 55 | ..... | 13 | ..... | 19 | 6 |
| 183,960 | 183,960 | ..... | 13.32 | No. | 7 | 50 | ..... | 1 | 25 | ..... | 9 | 1 | 3 | ..... | 13 | 7 |
| ..... | ..... | ..... | ..... | No. | 7 | ..... | ..... | 1 | 6 | ..... | ..... | ..... | ..... | 1 | 6 | 8 |
| 185,120 | 185,120 | ..... | 34.11 | Yes. | 10 | 15 | 1 | 1 | 97 | 1 | 72 | ..... | 10 | ..... | 15 | 9 |
| 10,800 | 10,800 | ..... | 6.71 | No. | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 10 |
| ..... | ..... | ..... | ..... | Yes. | 5 | 5 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 11 |
| [1]16,640 | 16,640 | ..... | 21.08 | No. | 12 | 12 | ..... | ..... | 1 | ..... | 1 | ..... | ..... | ..... | ..... | 12 |
| 258,726 | 250,448 | 8,278 | 21.04 | No. | 12 | 20 | ..... | 1 | 120 | ..... | 100 | ..... | 10 | 1 | 10 | 13 |
| ..... | ..... | ..... | ..... | No. | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 14 |
| ..... | ..... | ..... | ..... | No. | 5 | 8 | 1 | ..... | 4 | ..... | 3 | ..... | 1 | ..... | ..... | 15 |
| 11,122 | 11,122 | ..... | 6.32 | No. | 4 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 16 |
| 11,455 | 11,455 | ..... | 5.55 | No. | 4 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 17 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 3 | 18 | 3 | 14 | ..... | 3 | ..... | 1 | |
| ..... | ..... | ..... | ..... | No. | 8 | ..... | ..... | ..... | 2 | ..... | 2 | ..... | ..... | ..... | ..... | 1 |
| ..... | ..... | ..... | ..... | Yes. | 12 | 20 | 1 | 3 | 15 | 3 | 12 | ..... | 3 | ..... | ..... | 2 |
| ..... | ..... | ..... | ..... | No. | 10 | 18 | ..... | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 3 |
| [3]47,961 | 45,164 | 2,817 | 21.24 | ..... | ..... | ..... | 3 | 2 | 3 | 1 | 2 | ..... | ..... | 1 | 1 | |
| 32,850 | 32,850 | ..... | 21.62 | Yes. | 10 | 10 | 1 | 2 | 1 | 1 | ..... | ..... | ..... | 1 | 1 | 1 |
| 8,976 | 8,976 | ..... | 15.73 | Yes. | 8 | 15 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 |
| ..... | ..... | ..... | ..... | Yes. | 8 | 15 | ..... | ..... | 1 | ..... | 1 | ..... | ..... | ..... | ..... | 3 |
| ..... | ..... | ..... | ..... | No. | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4 |
| ..... | ..... | ..... | ..... | No. | 8 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 |
| ..... | ..... | ..... | ..... | Yes. | 8 | 15 | 1 | ..... | 1 | ..... | 1 | ..... | ..... | ..... | ..... | 6 |
| ..... | ..... | ..... | ..... | Yes. | 10 | 30 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| 6,155 | 3,338 | 2,817 | 32.26 | Yes. | ..... | 18 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 |
| ..... | ..... | ..... | ..... | No. | 8 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| [4]1,636,137 | 1,527,377 | 8,760 | 27.32 | ..... | ..... | ..... | 13 | 9 | 340 | 1 | 163 | 1 | 24 | 7 | 153 | |
| 17,280 | 17,280 | ..... | 26.49 | No. | 12 | 18 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| 37,404 | 37,404 | ..... | 28.69 | No. | 12 | 15 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 |
| ..... | ..... | ..... | ..... | Yes. | 12 | 16 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| 51,890 | 51,890 | ..... | 35.12 | No. | 12 | 15 | 1 | 1 | 1 | ..... | 1 | ..... | ..... | 1 | ..... | 4 |
| 39,420 | 39,420 | ..... | 25.04 | No. | 8 | 20 | ..... | ..... | 6 | ..... | 5 | ..... | ..... | ..... | 1 | 5 |
| 102,190 | 93,430 | 8,760 | 44.47 | Yes. | 8 | 25 | 1 | ..... | 19 | ..... | 12 | ..... | ..... | ..... | 7 | 6 |
| [5]2,808 | 2,808 | ..... | 13.10 | No. | 7 | 30 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| 46,622 | 46,622 | ..... | 23.64 | No. | 8 | 30 | 1 | 4 | 4 | 1 | 3 | ..... | 1 | 3 | ..... | 8 |
| [7]27,720 | 27,720 | ..... | 21.17 | Yes. | 8 | 15 | 1 | ..... | 44 | ..... | 16 | ..... | 2 | ..... | 26 | 9 |
| 212,769 | 212,769 | ..... | 33.97 | Yes. | 8 | 30 | 1 | 2 | 190 | ..... | 69 | 1 | 8 | 1 | 113 | 10 |
| 66,720 | 66,720 | ..... | 18.71 | No. | 8 | 20 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 11 |
| [8]7,410 | 7,410 | ..... | 14.84 | No. | 10 | 20 | ..... | ..... | 3 | ..... | 1 | ..... | ..... | ..... | 2 | 12 |
| ..... | ..... | ..... | ..... | No. | 10 | 15 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 13 |
| 68,976 | 68,976 | ..... | 15.98 | No. | 10 | 20 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 14 |
| 6,022 | 6,022 | ..... | 21.08 | No. | 12 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 15 |
| 299,388 | 299,388 | ..... | 22.70 | No. | 8 | 20 | ..... | ..... | 28 | ..... | 21 | ..... | 3 | ..... | 4 | 16 |
| 326,232 | 326,232 | ..... | 29.17 | No. | 8 | 15 | ..... | 1 | 21 | ..... | 17 | ..... | 4 | 1 | ..... | 17 |
| 176,016 | 176,016 | ..... | 23.75 | No. | 8 | 20 | 4 | ..... | 13 | ..... | 12 | ..... | 1 | ..... | ..... | 18 |
| 45,810 | 45,810 | ..... | 25.59 | No. | 15 | 20 | 1 | ..... | 1 | ..... | ..... | ..... | 1 | ..... | ..... | 19 |
| 1,460 | 1,460 | ..... | 12.67 | No. | 6 | 6 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 20 |
| ..... | ..... | ..... | ..... | Yes. | 10 | 25 | ..... | ..... | 10 | ..... | 6 | ..... | 4 | ..... | ..... | 21 |
| [10]900,038 | 876,471 | 23,567 | 41.84 | ..... | ..... | ..... | 9 | 1 | 48 | ..... | 28 | ..... | 2 | 1 | 18 | |
| 21,817 | 21,817 | ..... | 44.54 | Yes. | 9 | 9 | ..... | 1 | 1 | ..... | ..... | ..... | ..... | 1 | 1 | 1 |
| 16,471 | 10,211 | 6,260 | 19.67 | Yes. | 6 | 15 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 |
| 586,271 | 581,699 | 4,572 | 45.60 | Yes. | 12 | 15 | 4 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| 25,732 | 22,447 | 3,285 | 26.46 | Yes. | 10 | 20 | ..... | ..... | 9 | ..... | 8 | ..... | 1 | ..... | ..... | 4 |
| ..... | ..... | ..... | ..... | No. | 12 | 12 | 1 | ..... | 27 | ..... | 20 | ..... | ..... | ..... | 7 | 5 |
| 6,205 | 6,205 | ..... | 24.43 | No. | 9 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 |
| 198,384 | 190,812 | 7,572 | 36.29 | Yes. | 10 | 25 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7 |
| 45,158 | 43,280 | 1,878 | 30.03 | Yes. | 10 | 15 | 1 | ..... | 11 | ..... | ..... | ..... | 1 | ..... | 10 | 8 |
| [12]156,171 | 156,171 | ..... | 25.59 | ..... | ..... | ..... | 7 | 12 | 12 | 2 | 1 | 2 | 1 | 8 | 10 | |
| 16,425 | 16,425 | ..... | 17.58 | No. | 8 | 8 | ..... | 2 | 2 | ..... | ..... | ..... | ..... | 2 | 2 | 1 |
| 21,626 | 21,626 | ..... | 51.36 | Yes. | 8 | ..... | 1 | 3 | 4 | 1 | ..... | 1 | 1 | 1 | 3 | 2 |
| ..... | ..... | ..... | ..... | No. | 10 | ..... | ..... | 2 | ..... | ..... | ..... | ..... | ..... | 2 | ..... | 3 |
| ..... | ..... | ..... | ..... | No. | 16 | 30 | 3 | 1 | 2 | ..... | 1 | ..... | ..... | 1 | 1 | 4 |
| 105,120 | 105,120 | ..... | 22.83 | No. | 8 | 15 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 5 |
| 13,000 | 13,000 | ..... | 15.15 | No. | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6 |
| ..... | ..... | ..... | ..... | Yes. | 10 | 10 | 1 | 3 | 3 | 1 | ..... | 1 | ..... | 1 | 3 | 7 |
| ..... | ..... | ..... | ..... | Yes. | 10 | 20 | 1 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | 8 |

[7] For 8 months only.
[8] For 4½ months only.
[9] Not reported.
[10] For 7 companies only.
[11] Includes 1 company operating part of year.
[12] For 4 companies only.
[13] For 10 months only.

TABLE 97.—PASSENGERS, CAR MILEAGE, CAR HOURS, MAXIMUM

| Number. | STATE AND NAME OF COMPANY | NUMBER OF PASSENGERS CARRIED. | | | Transfer points. | Fare passengers per mile of single track. | CAR MILEAGE. | | | Fare passengers per car mile. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Fare. | Transfer. | | | Total. | Passenger cars. | Freight, mail, express, and other cars. | |
| | WISCONSIN. | | | | | | | | | |
| | Total for state | [1] 78,282,492 | 62,537,300 | 15,745,192 | 89 | 150.150 | [1] 15,609,884 | 15,528,124 | 81,760 | 4.03 |
| 1 | Wisconsin Traction, Light, Heat and Power | [3] 1,113,732 | 1,106,781 | 6,951 | 1 | 57,495 | [2] 335,250 | 335,250 | ..... | 3.30 |
| 2 | Ashland Light, Power and Street Railway | 503,658 | 503,658 | ..... | ..... | 65,580 | 266,584 | 266,584 | ..... | 1.89 |
| 3 | Chippewa Valley Electric Railroad | 1,405,250 | 1,277,500 | 127,750 | 2 | 56,602 | 528,520 | 528,520 | ..... | 2.42 |
| 4 | Fond du Lac Street Railway and Light | 721,326 | 721,326 | ..... | ..... | 115,044 | 259,549 | 259,549 | ..... | 2.78 |
| 5 | Fox River Electric Railway and Power | 1,511,233 | 1,161,233 | 350,000 | 1 | 67,789 | 561,800 | 561,800 | ..... | 2.07 |
| 6 | Janesville Street Railway | 304,398 | 304,398 | ..... | 1 | 41,079 | 121,045 | 121,045 | ..... | 2.51 |
| 7 | La Crosse City Railway | 1,938,845 | 1,646,728 | 292,117 | 3 | 114,039 | 617,478 | 617,478 | ..... | 2.67 |
| 8 | La Crosse and Onalaska | 60,000 | 60,000 | ..... | ..... | 22,472 | 58,949 | 58,949 | ..... | 1.02 |
| 9 | Madison Traction | 1,787,705 | 1,520,160 | 267,545 | 2 | 178,842 | 401,500 | 401,500 | ..... | 3.79 |
| 10 | Manitowoc and Northern | [4] 395,100 | 391,200 | 3,900 | 1 | 45,330 | [4] 152,880 | 152,880 | ..... | 2.56 |
| 11 | Marinette Gas, Electric Light and Street Railway | 574,370 | 574,370 | ..... | 2 | 106,365 | [5] 191,457 | 191,457 | ..... | 3.00 |
| 12 | Merrill Railway and Lighting | 140,848 | 140,848 | ..... | ..... | 90,870 | 75,000 | 75,000 | ..... | 1.88 |
| 13 | Milwaukee Electric Railway and Light | 60,901,052 | 46,974,373 | 13,926,679 | 59 | 322,848 | 9,143,023 | 9,143,023 | ..... | 5.14 |
| 14 | Milwaukee Light, Heat and Traction | 3,807,593 | 3,387,394 | 420,199 | 12 | 36,597 | 1,496,220 | 1,496,220 | ..... | 2.26 |
| 15 | Winnebago Traction | 2,259,074 | 1,973,843 | 285,231 | 3 | 61,683 | 954,119 | 954,119 | ..... | 2.07 |
| 16 | Sheboygan Light, Power and Railway | 694,490 | 629,670 | 64,820 | 2 | 31,484 | 408,860 | 327,100 | 81,760 | 1.93 |
| 17 | Waupaca Electric Light and Railway | 163,818 | 163,818 | ..... | ..... | 33,162 | 37,650 | 37,650 | ..... | 4.35 |
| | HAWAII. | | | | | | | | | |
| | Total for territory | 8,120,105 | 7,394,935 | 725,170 | 3 | 257,663 | 1,483,033 | 1,483,033 | ..... | 4.99 |
| 1 | Hawaiian Tramways | 3,443,638 | 3,443,638 | ..... | ..... | 286,970 | 735,448 | 735,448 | ..... | 4.68 |
| 2 | Honolulu Rapid Transit and Land | 4,576,467 | 3,851,297 | 725,170 | 3 | 271,218 | 721,585 | 721,585 | ..... | 5.34 |
| 3 | Pacific Heights Electric Railway | 100,000 | 100,000 | ..... | ..... | 40,000 | 26,000 | 26,000 | ..... | 3.85 |
| | PORTO RICO. | | | | | | | | | |
| | Total | 2,241,930 | 2,241,930 | ..... | ..... | 178,498 | 430,376 | 430,376 | ..... | 5.21 |
| 1 | Tramway Stock | 307,650 | 307,650 | ..... | ..... | 98,291 | 71,014 | 71,014 | ..... | 4.33 |
| 2 | San Juan Light and Transit | 1,934,280 | 1,934,280 | ..... | ..... | 205,120 | 359,362 | 359,362 | ..... | 5.38 |

[1] Includes 2 companies operating part of year. [2] For 13 companies only, and includes 2 companies operating part of year. [3] For 9 months only.

SPEED, ACCIDENTS, ETC., BY COMPANIES: 1902—Continued.

| CAR HOURS. | | | Fare passengers per car hour. | Mail carried. | MAXIMUM SPEED OF CARS, MILES PER HOUR. | | Pleasure parks, number owned or operated. | ACCIDENTS. | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Passenger cars. | Freight, mail, express, and other cars. | | | In city limits. | Outside city limits. | | Total. | | Passengers. | | Employees. | | Others. | | Number. |
| | | | | | | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | |
| [2] 1,587,893 | 1,587,893 | ..... | 37.19 | ..... | ..... | ..... | 4 | 12 | 2,040 | ..... | 1,134 | ..... | 521 | 12 | 385 | |
| [3] 34,870 | 34,870 | ..... | 31.74 | No..... | 8 | 34 | ..... | ..... | 4 | ..... | ..... | ..... | 4 | ..... | ..... | 1 |
| 37,230 | 37,230 | ..... | 13.53 | No..... | 8 | ..... | ..... | ..... | 1 | ..... | 1 | ..... | ..... | ..... | ..... | 2 |
| 52,560 | 52,560 | ..... | 24.31 | No..... | 12 | 35 | ..... | 2 | 1 | ..... | ..... | ..... | ..... | 2 | 1 | 3 |
| 27,030 | 27,030 | ..... | 26.69 | No..... | 8 | 10 | ..... | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 4 |
| 64,090 | 64,090 | ..... | 18.12 | No..... | 6 | 20 | 1 | 1 | ..... | ..... | ..... | ..... | ..... | 1 | ..... | 5 |
| ..... | ..... | ..... | ..... | No..... | 10 | ..... | ..... | ..... | 1 | ..... | ..... | ..... | 1 | ..... | ..... | 6 |
| 69,314 | 69,314 | ..... | 23.76 | No..... | 16 | ..... | ..... | ..... | 25 | ..... | 1 | ..... | ..... | ..... | 24 | 7 |
| 5,736 | 5,736 | ..... | 10.46 | No..... | 9 | 18 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 8 |
| 62,050 | 62,050 | ..... | 24.50 | No..... | 8 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 9 |
| [4] 24,000 | 24,000 | ..... | 16.30 | Yes.... | 8 | 30 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 10 |
| ..... | ..... | ..... | ..... | No..... | 6 | 10 | 1 | 1 | 2 | ..... | 2 | ..... | ..... | 1 | ..... | 11 |
| 12,410 | 12,410 | ..... | 11.35 | No..... | 12 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 12 |
| 1,050,977 | 1,050,977 | ..... | 44.70 | No..... | 9 | 13 | ..... | 6 | 1,752 | ..... | 960 | ..... | 456 | 6 | 336 | 13 |
| 143,663 | 143,663 | ..... | 23.58 | Yes.... | 7 | 14 | ..... | ..... | 240 | ..... | 168 | ..... | 60 | ..... | 12 | 14 |
| ..... | ..... | ..... | ..... | No..... | 8 | 16 | 1 | 1 | 14 | ..... | 2 | ..... | ..... | 1 | 12 | 15 |
| ..... | ..... | ..... | ..... | Yes.... | 7 | 10 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 16 |
| 3,963 | 3,963 | ..... | 41.34 | No..... | 4 | 15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 17 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2 | 10 | 2 | 10 | ..... | ..... | ..... | ..... | |
| ..... | ..... | ..... | ..... | No..... | 8 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| ..... | ..... | ..... | ..... | No..... | 12 | ..... | ..... | 2 | 10 | 2 | 10 | ..... | ..... | ..... | ..... | 2 |
| ..... | ..... | ..... | ..... | No..... | ..... | 10 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3 |
| ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 2 | 7 | ..... | 2 | ..... | 1 | 2 | 4 | |
| ..... | ..... | ..... | ..... | No..... | ([6]) | ([6]) | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 |
| ..... | ..... | ..... | ..... | No..... | 5 | 6 | 1 | 2 | 7 | ..... | 2 | ..... | 1 | 2 | 4 | 2 |

[4] For 8 months only.

[5] Estimated.

[6] Not reported.

TABLE 98.—WAGE-EARNERS, AT SPECIFIED DAILY RATES OF PAY AND

| | STATE. | ALL CLASSES. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Number at specified daily rates of pay. | | | | | | | | | | Median rate (dollars). |
| | | | Less than $1.00. | $1.00 to $1.24. | $1.25 to $1.49. | $1.50 to $1.74. | $1.75 to $1.99. | $2.00 to $2.24. | $2.25 to $2.49. | $2.50 to $2.74. | $2.75 to $2.99. | $3.00 and over. | |
| 1 | United States | 94,874 | 656 | 2,719 | 4,468 | 15,431 | 15,213 | 39,663 | 10,421 | 3,262 | 1,045 | 1,996 | 2.00 to 2.04 |
| 2 | Alabama | 311 | 51 | 15 | 164 | 28 | 32 | 7 | 2 | 6 | 1 | 5 | 1.45 to 1.49 |
| 3 | Arkansas | 215 | 11 | 30 | 71 | 63 | 13 | 5 | 14 | 4 | 2 | 2 | 1.35 to 1.39 |
| 4 | California | 4,611 | 2 | 24 | 63 | 245 | 300 | 2,810 | 570 | 200 | 123 | 274 | 2.20 to 2.24 |
| 5 | Colorado | 913 | ..... | ..... | 1 | 1 | 164 | 163 | 202 | 286 | 27 | 69 | 2.25 to 2.29 |
| 6 | Connecticut | 2,374 | ..... | 17 | 82 | 411 | 398 | 1,229 | 86 | 83 | 21 | 47 | 2.00 to 2.04 |
| 7 | Delaware | 226 | ..... | ..... | 6 | 15 | 9 | 172 | 9 | 11 | 2 | 2 | 2.00 to 2.04 |
| 8 | Florida | 185 | 14 | 70 | 3 | 38 | 16 | 24 | 11 | 4 | ..... | 5 | 1.50 to 1.54 |
| 9 | Georgia | 1,640 | 340 | 675 | 184 | 331 | 8 | 67 | 14 | 4 | 8 | 9 | 1.15 to 1.19 |
| 10 | Illinois | 5,130 | 1 | 13 | 168 | 1,043 | 645 | 2,242 | 681 | 136 | 84 | 117 | 2.00 to 2.04 |
| 11 | Indiana | 2,249 | 25 | 107 | 761 | 433 | 570 | 262 | 47 | 27 | 7 | 10 | 1.50 to 1.54 |
| 12 | Iowa | 1,344 | 25 | 58 | 155 | 491 | 398 | 88 | 51 | 48 | 6 | 24 | 1.60 to 1.64 |
| 13 | Kansas | 249 | ..... | 1 | 10 | 73 | 135 | 13 | 7 | 4 | 2 | 4 | 1.75 to 1.79 |
| 14 | Kentucky | 1,307 | 11 | 87 | 116 | 193 | 316 | 501 | 39 | 35 | ..... | 9 | 1.90 to 1.94 |
| 15 | Louisiana | 1,431 | 9 | 9 | 60 | 73 | 1,085 | 77 | 48 | 22 | 23 | 25 | 1.80 to 1.84 |
| 16 | Maine | 910 | ..... | 23 | 125 | 348 | 325 | 26 | 50 | 12 | ..... | 1 | 1.60 to 1.64 |
| 17 | Maryland | 115 | 1 | 19 | 20 | 23 | 28 | 23 | 1 | ..... | ..... | ..... | 1.70 to 1.74 |
| 18 | Massachusetts | 6,346 | ..... | 36 | 78 | 388 | 744 | 4,590 | 221 | 182 | 34 | 73 | 2.00 to 2.04 |
| 19 | Michigan | 2,913 | 8 | 277 | 105 | 641 | 365 | 1,279 | 137 | 45 | 15 | 41 | 2.00 to 2.04 |
| 20 | Minnesota | 1,408 | ..... | 7 | 28 | 369 | 751 | 110 | 118 | 13 | 6 | 6 | 1.80 to 1.84 |
| 21 | Mississippi | 122 | ..... | 20 | 20 | 39 | 23 | 9 | 4 | 1 | 3 | 3 | 1.55 to 1.59 |
| 22 | Missouri | 2,442 | ..... | 15 | 61 | 982 | 664 | 543 | 75 | 54 | 23 | 25 | 1.75 to 1.79 |
| 23 | Montana | 170 | 1 | ..... | ..... | ..... | ..... | 1 | 3 | 11 | 22 | 132 | 3.50 to 3.54 |
| 24 | Nebraska | 477 | ..... | ..... | 20 | 71 | 31 | 334 | 7 | 11 | 2 | 1 | 2.00 to 2.04 |
| 25 | New Hampshire | 354 | ..... | ..... | 4 | 44 | 181 | 108 | 4 | 7 | 1 | 5 | 1.75 to 1.79 |
| 26 | New Jersey | 3,693 | 3 | 48 | 75 | 462 | 823 | 1,937 | 136 | 138 | 26 | 45 | 2.00 to 2.04 |
| 27 | New York | 23,297 | 2 | 27 | 698 | 2,874 | 2,579 | 9,843 | 5,361 | 979 | 290 | 644 | 2.00 to 2.04 |
| 28 | North Carolina | 345 | 52 | 186 | 14 | 65 | 11 | 11 | 2 | 4 | ..... | ..... | 1.00 to 1.04 |
| 29 | Ohio | 6,949 | 26 | 38 | 281 | 1,311 | 1,495 | 2,822 | 710 | 179 | 38 | 49 | 2.00 to 2.04 |
| 30 | Oregon | 451 | ..... | 1 | ..... | 9 | 13 | 65 | 293 | 14 | 28 | 28 | 2.25 to 2.29 |
| 31 | Pennsylvania | 14,782 | 6 | 180 | 515 | 2,769 | 1,545 | 7,722 | 1,254 | 438 | 171 | 182 | 2.00 to 2.04 |
| 32 | Rhode Island | 217 | ..... | 1 | 2 | 32 | 19 | 78 | 71 | 8 | 1 | 5 | 2.10 to 2.14 |
| 33 | South Carolina | 338 | 30 | 53 | 67 | 141 | 15 | 18 | 5 | ..... | 1 | 8 | 1.50 to 1.54 |
| 34 | Tennessee | 1,135 | 5 | 500 | 67 | 233 | 230 | 44 | 18 | 15 | 9 | 14 | 1.25 to 1.29 |
| 35 | Texas | 744 | 4 | 53 | 76 | 298 | 192 | 60 | 31 | 14 | 7 | 9 | 1.65 to 1.69 |
| 36 | Utah | 331 | ..... | ..... | 7 | 6 | 170 | 129 | 2 | 4 | 9 | 4 | 1.80 to 1.84 |
| 37 | Vermont | 158 | ..... | 3 | 43 | 49 | 49 | 10 | 1 | 3 | ..... | ..... | 1.70 to 1.74 |
| 38 | Virginia | 802 | 2 | 91 | 68 | 224 | 225 | 143 | 22 | 20 | ..... | 7 | 1.75 to 1.79 |
| 39 | Washington | 1,089 | ..... | 13 | 13 | 15 | 161 | 585 | 29 | 161 | 30 | 82 | 2.00 to 2.04 |
| 40 | West Virginia | 534 | ..... | ..... | 54 | 218 | 21 | 208 | 14 | 9 | 1 | 9 | 1.60 to 1.64 |
| 41 | Wisconsin | 1,316 | 27 | 20 | 94 | 288 | 417 | 378 | 50 | 20 | 14 | 8 | 1.90 to 1.94 |
| 42 | All other states[1] | 1,251 | ..... | 2 | 89 | 94 | 47 | 927 | 21 | 50 | 8 | 13 | 2.00 to 2.04 |

[1] Includes states having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico, 1.

## MEDIAN RATE, ON ELECTRIC SURFACE RAILWAYS, BY STATES: 1902.

CONDUCTORS.

| Total. | Number at specified daily rates of pay. | | | | | | | | | | Median rate (dollars). | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Less than $1.00. | $1.00 to $1.24. | $1.25 to $1.49. | $1.50 to $1.74. | $1.75 to $1.99. | $2.00 to $2.24. | $2.25 to $2.49. | $2.50 to $2.74. | $2.75 to $2.99. | $3.00 and over. | | |
| 31,869 | 50 | 899 | 1,046 | 3,963 | 5,426 | 17,059 | 3,124 | 192 | 17 | 73 | 2.00 to 2.04 | 1 |
| 84 | ..... | 2 | 74 | 8 | ..... | ..... | ..... | ..... | ..... | ..... | 1.45 to 1.49 | 2 |
| 55 | 10 | 5 | 40 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1.35 to 1.39 | 3 |
| 1,620 | ..... | 12 | 9 | 98 | 47 | 1,231 | 221 | 2 | ..... | ..... | 2.20 to 2.24 | 4 |
| 296 | ..... | ..... | ..... | ..... | 47 | 42 | 78 | 120 | ..... | 9 | 2.25 to 2.29 | 5 |
| 758 | ..... | ..... | 12 | 75 | 186 | 527 | 8 | ..... | ..... | ..... | 2.00 to 2.04 | 6 |
| 82 | ..... | ..... | ..... | ..... | ..... | 82 | ..... | ..... | ..... | ..... | 2.00 to 2.04 | 7 |
| 56 | ..... | 34 | ..... | 14 | ..... | 8 | ..... | ..... | ..... | ..... | 1.10 to 1.14 | 8 |
| 481 | ..... | 282 | 75 | 124 | ..... | ..... | ..... | ..... | ..... | ..... | 1.15 to 1.19 | 9 |
| 2,057 | ..... | ..... | 60 | 468 | 142 | 1,057 | 300 | 9 | ..... | 21 | 2.10 to 2.14 | 10 |
| 637 | ..... | 25 | 252 | 51 | 227 | 82 | ..... | ..... | ..... | ..... | 1.70 to 1.74 | 11 |
| 356 | 13 | 14 | 61 | 170 | 98 | ..... | ..... | ..... | ..... | ..... | 1.50 to 1.54 | 12 |
| 54 | ..... | ..... | 1 | 7 | 46 | ..... | ..... | ..... | ..... | ..... | 1.75 to 1.79 | 13 |
| 290 | ..... | 43 | 13 | 13 | 136 | 85 | ..... | ..... | ..... | ..... | 1.90 to 1.94 | 14 |
| 525 | ..... | ..... | ..... | 5 | 514 | 5 | 1 | ..... | ..... | ..... | 1.80 to 1.84 | 15 |
| 258 | ..... | 6 | 59 | 79 | 112 | 2 | ..... | ..... | ..... | ..... | 1.50 to 1.54 | 16 |
| 36 | ..... | 5 | 9 | ..... | 15 | 7 | ..... | ..... | ..... | ..... | 1.75 to 1.79 | 17 |
| 2,239 | ..... | ..... | 17 | 8 | 175 | 2,039 | ..... | ..... | ..... | ..... | 2.00 to 2.04 | 18 |
| 880 | ..... | 140 | 13 | 102 | 76 | 532 | 17 | ..... | ..... | ..... | 2.10 to 2.14 | 19 |
| 475 | ..... | 5 | ..... | 188 | 280 | 2 | ..... | ..... | ..... | ..... | 1.80 to 1.84 | 20 |
| 28 | ..... | ..... | 5 | 13 | 10 | ..... | ..... | ..... | ..... | ..... | 1.65 to 1.69 | 21 |
| 860 | ..... | 6 | 3 | 407 | 227 | 217 | ..... | ..... | ..... | ..... | 1.80 to 1.84 | 22 |
| 60 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1 | 16 | 43 | 3.50 to 3.54 | 23 |
| 170 | ..... | ..... | ..... | 30 | ..... | 140 | ..... | ..... | ..... | ..... | 2.00 to 2.04 | 24 |
| 123 | ..... | ..... | 2 | ..... | 81 | 40 | ..... | ..... | ..... | ..... | 1.75 to 1.79 | 25 |
| 1,213 | ..... | ..... | ..... | 73 | 387 | 753 | ..... | ..... | ..... | ..... | 2.00 to 2.04 | 26 |
| 8,089 | ..... | 8 | 87 | 718 | 1,098 | 4,591 | 1,587 | ..... | ..... | ..... | 2.00 to 2.04 | 27 |
| 93 | 6 | 58 | ..... | 29 | ..... | ..... | ..... | ..... | ..... | ..... | 1.00 to 1.04 | 28 |
| 2,341 | 7 | 11 | 65 | 188 | 596 | 1,216 | 245 | 12 | 1 | ..... | 2.00 to 2.04 | 29 |
| 148 | ..... | ..... | ..... | 1 | 5 | ..... | 142 | ..... | ..... | ..... | 2.25 to 2.29 | 30 |
| 4,942 | ..... | 26 | 77 | 589 | 433 | 3,358 | 458 | 1 | ..... | ..... | 2.00 to 2.04 | 31 |
| 92 | ..... | ..... | ..... | 4 | 6 | 31 | 51 | ..... | ..... | ..... | 2.25 to 2.29 | 32 |
| 112 | ..... | 25 | 27 | 60 | ..... | ..... | ..... | ..... | ..... | ..... | 1.50 to 1.54 | 33 |
| 385 | 4 | 167 | ..... | 105 | 107 | 2 | ..... | ..... | ..... | ..... | 1.50 to 1.54 | 34 |
| 197 | ..... | 6 | 4 | 94 | 67 | 18 | 8 | ..... | ..... | ..... | 1.70 to 1.74 | 35 |
| 90 | ..... | ..... | ..... | ..... | 39 | 51 | ..... | ..... | ..... | ..... | 2.00 to 2.04 | 36 |
| 55 | ..... | ..... | 14 | 16 | 23 | 2 | ..... | ..... | ..... | ..... | 1.70 to 1.74 | 37 |
| 260 | ..... | 4 | 10 | 86 | 110 | 50 | ..... | ..... | ..... | ..... | 1.80 to 1.84 | 38 |
| 349 | ..... | 6 | 6 | 5 | 32 | 245 | 8 | 47 | ..... | ..... | 2.00 to 2.04 | 39 |
| 175 | ..... | ..... | 32 | 54 | ..... | 89 | ..... | ..... | ..... | ..... | 2.00 to 2.04 | 40 |
| 397 | 10 | 9 | 19 | 97 | 154 | 108 | ..... | ..... | ..... | ..... | 1.80 to 1.84 | 41 |
| 451 | ..... | ..... | ..... | 4 | ..... | 447 | ..... | ..... | ..... | ..... | 2.00 to 2.04 | 42 |

TABLE 98.—WAGE-EARNERS, AT SPECIFIED DAILY RATES OF PAY AND

| | STATE. | MOTORMEN. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Number at specified daily rates of pay. | | | | | | | | | Median rate (dollars). |
| | | | Less than $1.00. | $1.00 to $1.24. | $1.25 to $1.49. | $1.50 to $1.74. | $1.75 to $1.99. | $2.00 to $2.24. | $2.25 to $2.49. | $2.50 to $2.74. | $2.75 to $2.99. | $3.00 and over. | |
| 1 | United States | 32,412 | 23 | 884 | 1,123 | 3,374 | 5,481 | 16,665 | 4,325 | 291 | 7 | 239 | 2.00 to 2.04 |
| 2 | Alabama | 88 | | 2 | 82 | 4 | | | | | | | 1.45 to 1.49 |
| 3 | Arkansas | 82 | | 22 | 7 | 42 | 11 | | | | | | 1.50 to 1.54 |
| 4 | California | 1,623 | | | 14 | 107 | 46 | 1,233 | 221 | 2 | | | 2.20 to 2.24 |
| 5 | Colorado | 302 | | | | | 47 | 46 | 78 | 122 | | 9 | 2.25 to 2.29 |
| 6 | Connecticut | 759 | | 12 | | 71 | 142 | 523 | 10 | 1 | | | 2.00 to 2.04 |
| 7 | Delaware | 82 | | | | | | 82 | | | | | 2.00 to 2.04 |
| 8 | Florida | 57 | | 34 | | 14 | | 9 | | | | | 1.10 to 1.14 |
| 9 | Georgia | 510 | | 286 | 82 | 142 | | | | | | | 1.15 to 1.19 |
| 10 | Illinois | 1,751 | | | 69 | 277 | 190 | 974 | 211 | 14 | | 16 | 2.00 to 2.04 |
| 11 | Indiana | 668 | | 15 | 255 | 79 | 256 | 63 | | | | | 1.65 to 1.69 |
| 12 | Iowa | 420 | 2 | 23 | 37 | 129 | 229 | | | | | | 1.75 to 1.79 |
| 13 | Kansas | 95 | | | | 17 | 78 | | | | | | 1.75 to 1.79 |
| 14 | Kentucky | 557 | | 15 | 73 | 17 | 141 | 311 | | | | | 2.00 to 2.04 |
| 15 | Louisiana | 532 | | | | 12 | 514 | 5 | 1 | | | | 1.80 to 1.84 |
| 16 | Maine | 258 | | 6 | 57 | 79 | 113 | 3 | | | | | 1.50 to 1.54 |
| 17 | Maryland | 42 | | 4 | | 13 | 13 | 12 | | | | | 1.75 to 1.79 |
| 18 | Massachusetts | 2,185 | | | 17 | 7 | 174 | 1,980 | 7 | | | | 2.00 to 2.04 |
| 19 | Michigan | 931 | | 130 | 27 | 123 | 86 | 534 | 31 | | | | 2.10 to 2.14 |
| 20 | Minnesota | 482 | | | 11 | 152 | 317 | 2 | | | | | 1.80 to 1.84 |
| 21 | Mississippi | 32 | | | 6 | 16 | 10 | | | | | | 1.55 to 1.59 |
| 22 | Missouri | 829 | | 2 | 3 | 312 | 291 | 221 | | | | | 1.80 to 1.84 |
| 23 | Montana | 55 | | | | | | 1 | | 1 | 6 | 47 | 3.50 to 3.54 |
| 24 | Nebraska | 187 | | | | 40 | 3 | 144 | | | | | 2.00 to 2.04 |
| 25 | New Hampshire | 123 | | | 2 | | 81 | 40 | | | | | 1.75 to 1.79 |
| 26 | New Jersey | 1,194 | | | | 69 | 278 | 847 | | | | | 2.00 to 2.04 |
| 27 | New York | 7,799 | | 6 | 70 | 381 | 679 | 3,602 | 2,806 | 88 | | 167 | 2.00 to 2.04 |
| 28 | North Carolina | 93 | 6 | 58 | | 29 | | | | | | | 1.00 to 1.04 |
| 29 | Ohio | 2,425 | | 20 | 54 | 235 | 610 | 1,234 | 255 | 16 | 1 | | 2.00 to 2.04 |
| 30 | Oregon | 149 | | | | 7 | | | 142 | | | | 2.25 to 2.29 |
| 31 | Pennsylvania | 5,380 | | 23 | 83 | 437 | 592 | 3,716 | 528 | 1 | | | 2.00 to 2.04 |
| 32 | Rhode Island | 59 | | | | 4 | 6 | 31 | 18 | | | | 2.10 to 2.14 |
| 33 | South Carolina | 112 | | 15 | 37 | 60 | | | | | | | 1.50 to 1.54 |
| 34 | Tennessee | 399 | | 147 | 42 | 100 | 106 | 4 | | | | | 1.50 to 1.54 |
| 35 | Texas | 307 | 2 | 46 | 9 | 120 | 104 | 18 | 8 | | | | 1.60 to 1.64 |
| 36 | Utah | 103 | | | | | 39 | 63 | 1 | | | | 2.00 to 2.04 |
| 37 | Vermont | 56 | | | 16 | 15 | 23 | 2 | | | | | 1.70 to 1.74 |
| 38 | Virginia | 249 | | 4 | 11 | 76 | 98 | 60 | | | | | 1.80 to 1.84 |
| 39 | Washington | 353 | | 6 | 6 | 5 | 35 | 247 | 8 | 46 | | | 2.00 to 2.04 |
| 40 | West Virginia | 175 | | | | 86 | | 89 | | | | | 2.00 to 2.04 |
| 41 | Wisconsin | 466 | 13 | 8 | 53 | 93 | 169 | 130 | | | | | 1.80 to 1.84 |
| 42 | All other states[1] | 443 | | | | 4 | | 439 | | | | | 2.00 to 2.04 |

[1] Includes states having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico, 1.

MEDIAN RATE, ON ELECTRIC SURFACE RAILWAYS, BY STATES: 1902—Continued.

| ROAD AND TRACKMEN. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Number at specified daily rates of pay. | | | | | | | | | | Median rate (dollars). | |
| | Less than $1.00. | $1.00 to $1.24. | $1.25 to $1.49. | $1.50 to $1.74. | $1.75 to $1.99. | $2.00 to $2.24. | $2.25 to $2.49. | $2.50 to $2.74. | $2.75 to $2.99. | $3.00 and over. | | |
| 9,926 | 473 | 477 | 1,368 | 4,505 | 1,280 | 1,229 | 384 | 162 | 8 | 40 | 1.50 to 1.54 | 1 |
| 51 | 51 | | | | | | | | | | Less than 1.00 | 2 |
| 19 | | | 15 | 4 | | | | | | | 1.25 to 1.29 | 3 |
| 367 | | | 35 | 7 | 95 | 170 | 25 | 24 | 4 | 7 | 2.00 to 2.04 | 4 |
| 130 | | | | 1 | 55 | 61 | 3 | 6 | 3 | 1 | 2.00 to 2.04 | 5 |
| 312 | | | 68 | 198 | 31 | 15 | 3 | 2 | | | 1.50 to 1.54 | 6 |
| 17 | | | 6 | 10 | | | | 1 | | | 1.50 to 1.54 | 7 |
| 13 | 11 | 2 | | | | | | | | | Less than 1.00 | 8 |
| 378 | 330 | 48 | | | | | | | | | Less than 1.00 | 9 |
| 272 | | 5 | 27 | 108 | 85 | 26 | 16 | 5 | | | 1.65 to 1.69 | 10 |
| 355 | 13 | 21 | 199 | 120 | 2 | | | | | | 1.25 to 1.29 | 11 |
| 188 | | 11 | 26 | 117 | 21 | 3 | 8 | 2 | | | 1.60 to 1.64 | 12 |
| 45 | | | 5 | 39 | | 1 | | | | | 1.50 to 1.54 | 13 |
| 165 | 11 | 17 | 6 | 130 | 1 | | | | | | 1.50 to 1.54 | 14 |
| 85 | | 3 | 41 | 24 | 1 | 16 | | | | | 1.25 to 1.29 | 15 |
| 159 | | 6 | | 102 | 51 | | | | | | 1.50 to 1.54 | 16 |
| 14 | | 4 | 9 | 1 | | | | | | | 1.25 to 1.29 | 17 |
| 589 | | 8 | 11 | 239 | 203 | 99 | 15 | 6 | | 8 | 1.75 to 1.79 | 18 |
| 343 | 1 | | 21 | 267 | 32 | | 18 | | | 4 | 1.50 to 1.54 | 19 |
| 159 | | | 1 | | 82 | 76 | | | | | 1.90 to 1.94 | 20 |
| 19 | | 17 | 1 | | 1 | | | | | | 1.10 to 1.14 | 21 |
| 231 | | | 43 | 168 | 15 | 4 | | | | 1 | 1.50 to 1.54 | 22 |
| 19 | | | | | | | 3 | 5 | | 11 | 3.00 to 3.04 | 23 |
| 21 | | | 15 | | 6 | | | | | | 1.40 to 1.44 | 24 |
| 35 | | | | 30 | 3 | 1 | | 1 | | | 1.50 to 1.54 | 25 |
| 252 | | 2 | 62 | 143 | 24 | 9 | | 6 | | 6 | 1.50 to 1.54 | 26 |
| 2,567 | | 3 | 292 | 975 | 294 | 635 | 281 | 87 | | | 1.75 to 1.79 | 27 |
| 59 | 25 | 30 | | 2 | 2 | | | | | | 1.00 to 1.04 | 28 |
| 693 | | 1 | 120 | 527 | 26 | 11 | 1 | 6 | 1 | | 1.50 to 1.54 | 29 |
| 52 | | | | | | 52 | | | | | 2.00 to 2.04 | 30 |
| 1,529 | 1 | 94 | 231 | 1,111 | 61 | 11 | 8 | 10 | | 2 | 1.50 to 1.54 | 31 |
| 18 | | 1 | | 17 | | | | | | | 1.50 to 1.54 | 32 |
| 34 | 28 | 5 | | 1 | | | | | | | Less than 1.00 | 33 |
| 141 | | 140 | | 1 | | | | | | | 1.00 to 1.04 | 34 |
| 115 | 1 | | 54 | 57 | 2 | | | 1 | | | 1.50 to 1.54 | 35 |
| 89 | | | | 3 | 86 | | | | | | 1.75 to 1.79 | 36 |
| 19 | | 2 | 7 | 8 | 2 | | | | | | 1.50 to 1.54 | 37 |
| 70 | 1 | 56 | 6 | 6 | 1 | | | | | | 1.00 to 1.04 | 38 |
| 91 | | | | 2 | 61 | 28 | | | | | 1.80 to 1.84 | 39 |
| 62 | | | 17 | 43 | 1 | 1 | | | | | 1.50 to 1.54 | 40 |
| 73 | | 1 | 6 | 22 | 33 | 8 | 3 | | | | 1.75 to 1.79 | 41 |
| 76 | | | 49 | 22 | 3 | 2 | | | | | 1.25 to 1.29 | 42 |

TABLE 98.—WAGE-EARNERS AT SPECIFIED DAILY RATES OF PAY, AND

| | STATE. | ENGINEERS. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Number at specified daily rates of pay. | | | | | | | | | Median rate (dollars). |
| | | | Less than $1.00. | $1.00 to $1.24. | $1.25 to $1.49. | $1.50 to $1.74. | $1.75 to $1.99. | $2.00 to $2.24. | $2.25 to $2.49. | $2.50 to $2.74. | $2.75 to $2.99. | $3.00 and over. | |
| 1 | United States | 1,534 | 3 | 5 | 39 | 104 | 89 | 295 | 187 | 274 | 115 | 423 | 2.50 to 2.54 |
| 2 | Alabama | 8 | | | | 1 | 2 | | 2 | | | 3 | 2.25 to 2.29 |
| 3 | Arkansas | 12 | | | 2 | 2 | | 2 | 1 | 3 | 1 | 1 | 2.30 to 2.34 |
| 4 | California | 50 | | | | | | 2 | | 9 | 2 | 37 | 3.25 to 3.29 |
| 5 | Colorado | 21 | | | | | | 1 | | 8 | 2 | 10 | 2.75 to 2.79 |
| 6 | Connecticut | 57 | | | | | 2 | 15 | 6 | 12 | 5 | 17 | 2.50 to 2.54 |
| 7 | Delaware | 8 | | | | | 1 | 2 | 1 | 1 | 2 | 1 | 2.50 to 2.54 |
| 8 | Florida | 8 | | | 1 | | | 1 | | 3 | | 3 | 2.50 to 2.54 |
| 9 | Georgia | 23 | | | 3 | 1 | | 5 | 1 | 1 | 8 | 4 | 2.80 to 2.84 |
| 10 | Illinois | 80 | | 2 | 1 | 2 | 2 | 14 | 7 | 26 | 9 | 17 | 2.50 to 2.54 |
| 11 | Indiana | 54 | | | | 4 | 10 | 19 | 6 | 8 | 3 | 4 | 2.00 to 2.04 |
| 12 | Iowa | 41 | 3 | | 3 | 3 | 10 | 7 | 8 | 3 | | 4 | 2.00 to 2.04 |
| 13 | Kansas | 12 | | | | 1 | 4 | 2 | 2 | | | 3 | 2.00 to 2.04 |
| 14 | Kentucky | 20 | | | 4 | 3 | | 4 | | 2 | | 7 | 2.00 to 2.04 |
| 15 | Louisiana | 23 | | | | | 2 | 1 | 2 | 1 | 10 | 7 | 2.95 to 2.99 |
| 16 | Maine | 32 | | | 6 | 2 | | 5 | 12 | 7 | | | 2.25 to 2.29 |
| 17 | Maryland | 6 | | 1 | | 2 | | 2 | 1 | | | | 1.50 to 1.54 |
| 18 | Massachusetts | 138 | | 1 | | | 4 | 20 | 22 | 42 | 15 | 34 | 2.50 to 2.54 |
| 19 | Michigan | 59 | | | | 8 | 5 | 8 | 7 | 8 | 6 | 17 | 2.50 to 2.54 |
| 20 | Minnesota | 14 | | | | | | 9 | | 1 | 3 | 1 | 2.15 to 2.19 |
| 21 | Mississippi | 8 | | | | 1 | 1 | 1 | | 1 | 2 | 2 | 2.50 to 2.54 |
| 22 | Missouri | 49 | | | | 16 | | 2 | 12 | 7 | 5 | 7 | 2.25 to 2.29 |
| 23 | Montana | 3 | | | | | | | | | | 3 | 4.00 to 4.04 |
| 24 | Nebraska | 4 | | | | | | 2 | 1 | | 1 | | 2.25 to 2.29 |
| 25 | New Hampshire | 10 | | | | | | 4 | 1 | 1 | 1 | 3 | 2.50 to 2.54 |
| 26 | New Jersey | 39 | | | | | 3 | 8 | 4 | 15 | 1 | 8 | 2.50 to 2.54 |
| 27 | New York | 188 | | | 2 | 9 | 13 | 40 | 11 | 26 | 10 | 77 | 2.65 to 2.69 |
| 28 | North Carolina | 18 | | 1 | 1 | 2 | 3 | 5 | 2 | 4 | | | 2.00 to 2.04 |
| 29 | Ohio | 148 | | | 2 | 9 | 10 | 26 | 36 | 33 | 8 | 24 | 2.30 to 2.34 |
| 30 | Oregon | 7 | | | | | 1 | | 1 | 1 | | 4 | 3.00 to 3.04 |
| 31 | Pennsylvania | 218 | | | 11 | 16 | 3 | 53 | 19 | 22 | 12 | 82 | 2.50 to 2.54 |
| 32 | Rhode Island | 7 | | | | | | | 2 | 3 | | 2 | 2.55 to 2.59 |
| 33 | South Carolina | 9 | | | | 2 | | 1 | | | | 6 | 3.00 to 3.04 |
| 34 | Tennessee | 16 | | | | 5 | | 2 | 1 | 1 | 4 | 3 | 2.25 to 2.29 |
| 35 | Texas | 13 | | | | | 1 | 5 | | 5 | 1 | 1 | 2.50 to 2.54 |
| 36 | Utah | 2 | | | | | | 1 | 1 | | | | 2.15 to 2.19 |
| 37 | Vermont | 4 | | | | 2 | | 1 | 1 | | | | 2.15 to 2.19 |
| 38 | Virginia | 36 | | | 3 | 10 | 1 | 4 | 5 | 9 | | 4 | 2.30 to 2.34 |
| 39 | Washington | 21 | | | | | | | 3 | | | 18 | 3.00 to 3.04 |
| 40 | West Virginia | 26 | | | | | 9 | 8 | 4 | 1 | | 4 | 2.00 to 2.04 |
| 41 | Wisconsin | 28 | | | | 3 | 2 | 11 | 4 | 5 | 3 | | 2.05 to 2.09 |
| 42 | All other states[1] | 14 | | | | | | 2 | 1 | 5 | 1 | 5 | 2.65 to 2.69 |

[1] Includes states having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico, 1.

MEDIAN RATE, ON ELECTRIC SURFACE RAILWAYS, BY STATES: 1902—Continued.

| FIREMEN. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Number at specified daily rates of pay. | | | | | | | | | | Median rate (dollars). | |
| | Less than $1.00. | $1.00 to $1.24. | $1.25 to $1.49. | $1.50 to $1.74. | $1.75 to $1.99. | $2.00 to $2.24. | $2.25 to $2.49. | $2.50 to $2.74. | $2.75 to $2.99. | $3.00 and over. | | |
| 2,344 | 16 | 76 | 135 | 469 | 637 | 770 | 171 | 48 | 1 | 21 | 1.80 to 1.84 | 1 |
| 10 | | 2 | 3 | 5 | | | | | | | 1.45 to 1.49 | 2 |
| 16 | | 3 | 3 | 10 | | | | | | | 1.50 to 1.54 | 3 |
| 92 | | | | 4 | 9 | 54 | 23 | 2 | | | 2.00 to 2.04 | 4 |
| 37 | | | | | | 3 | 25 | 6 | | 3 | 2.25 to 2.29 | 5 |
| 56 | | | | 2 | 13 | 40 | 1 | | | | 2.00 to 2.04 | 6 |
| 10 | | | | 4 | 2 | 4 | | | | | 1.75 to 1.79 | 7 |
| 7 | 2 | | | 3 | | 2 | | | | | 1.65 to 1.69 | 8 |
| 30 | 2 | 19 | 5 | 4 | | | | | | | 1.10 to 1.14 | 9 |
| 123 | | | 2 | 18 | 82 | 18 | 3 | | | | 1.75 to 1.79 | 10 |
| 52 | | | 14 | 22 | 15 | 1 | | | | | 1.50 to 1.54 | 11 |
| 62 | 4 | 4 | 4 | 25 | 14 | 9 | 2 | | | | 1.50 to 1.54 | 12 |
| 10 | | | 2 | 4 | 1 | 3 | | | | | 1.50 to 1.54 | 13 |
| 32 | | 5 | 7 | 2 | 18 | | | | | | 1.75 to 1.79 | 14 |
| 25 | | | 2 | 8 | 13 | 2 | | | | | 1.95 to 1.99 | 15 |
| 29 | | 2 | | 12 | 15 | | | | | | 1.75 to 1.79 | 16 |
| 5 | | 3 | 2 | | | | | | | | 1.05 to 1.09 | 17 |
| 178 | | | 2 | 25 | 65 | 68 | 16 | 2 | | | 1.75 to 1.79 | 18 |
| 67 | | | 2 | 23 | 30 | 10 | 2 | | | | 1.75 to 1.79 | 19 |
| 24 | | | | 3 | 20 | 1 | | | | | 1.75 to 1.79 | 20 |
| 11 | | 1 | 2 | 4 | | 4 | | | | | 1.50 to 1.54 | 21 |
| 63 | | 1 | 1 | 20 | 24 | 17 | | | | | 1.75 to 1.79 | 22 |
| 4 | | | | | | | | | | 4 | 3.50 to 3.54 | 23 |
| 17 | | | | | 17 | | | | | | 1.85 to 1.89 | 24 |
| 6 | | | | 2 | 2 | 2 | | | | | 1.75 to 1.79 | 25 |
| 68 | | | | 18 | 9 | 41 | | | | | 2.00 to 2.04 | 26 |
| 549 | | 1 | 19 | 57 | 78 | 291 | 76 | 27 | | | 2.00 to 2.04 | 27 |
| 18 | 6 | 11 | 1 | | | | | | | | 1.00 to 1.04 | 28 |
| 203 | | | 11 | 49 | 103 | 28 | 1 | 8 | 1 | 2 | 1.75 to 1.79 | 29 |
| 15 | | | | | 2 | 7 | 6 | | | | 2.00 to 2.04 | 30 |
| 329 | | 3 | 31 | 81 | 73 | 114 | 12 | 3 | | 12 | 1.80 to 1.84 | 31 |
| 10 | | | | 2 | 3 | 5 | | | | | 1.85 to 1.89 | 32 |
| 8 | | 2 | | | 6 | | | | | | 1.85 to 1.89 | 33 |
| 19 | | 10 | 3 | 6 | | | | | | | 1.00 to 1.04 | 34 |
| 16 | 1 | | 3 | 4 | 8 | | | | | | 1.65 to 1.69 | 35 |
| 2 | | | | 2 | | | | | | | 1.50 to 1.54 | 36 |
| 2 | | 1 | | | | 1 | | | | | 2.00 to 2.04 | 37 |
| 29 | 1 | 8 | 11 | 9 | | | | | | | 1.30 to 1.34 | 38 |
| 37 | | | | | 4 | 29 | 4 | | | | 2.15 to 2.19 | 39 |
| 23 | | | | 12 | 11 | | | | | | 1.60 to 1.64 | 40 |
| 34 | | | 4 | 29 | | 1 | | | | | 1.60 to 1.64 | 41 |
| 16 | | | 1 | | | 15 | | | | | 2.00 to 2.04 | 42 |

TABLE 98.—WAGE-EARNERS AT SPECIFIED DAILY RATES OF PAY, AND

| | STATE. | MECHANICS. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | Number at specified daily rates of pay. | | | | | | | | | | Median rate (dollars). |
| | | | Less than $1.00. | $1.00 to $1.24. | $1.25 to $1.49. | $1.50 to $1.74. | $1.75 to $1.99. | $2.00 to $2.24. | $2.25 to $2.49. | $2.50 to $2.74. | $2.75 to $2.99. | $3.00 and over. | |
| 1 | United States | 6,753 | 21 | 83 | 195 | 896 | 1,062 | 1,707 | 1,017 | 936 | 427 | 409 | 2.00 to 2.04 |
| 2 | Alabama | 33 | | | | 2 | 30 | | | | 1 | | 1.90 to 1.94 |
| 3 | Arkansas | 14 | | | | | 1 | | 12 | | | 1 | 2.30 to 2.34 |
| 4 | California | 407 | | 6 | 3 | 8 | 29 | 59 | 28 | 87 | 73 | 114 | 2.50 to 2.54 |
| 5 | Colorado | 37 | | | | | | 1 | 11 | 6 | 9 | 10 | 2.75 to 2.79 |
| 6 | Connecticut | 161 | | 1 | 2 | 12 | 38 | 38 | 21 | 31 | 9 | 9 | 2.00 to 2.04 |
| 7 | Delaware | 10 | | | | | 1 | | 7 | 2 | | | 2.25 to 2.29 |
| 8 | Florida | 11 | | | | 1 | 9 | 1 | | | | | 1.75 to 1.79 |
| 9 | Georgia | 32 | 5 | 1 | 4 | 9 | 1 | 4 | 4 | 1 | | 3 | 1.50 to 1.54 |
| 10 | Illinois | 308 | | | 2 | 3 | 15 | 64 | 108 | 49 | 43 | 24 | 2.25 to 2.29 |
| 11 | Indiana | 221 | 1 | 31 | 27 | 57 | 33 | 59 | 9 | 3 | 1 | | 1.60 to 1.64 |
| 12 | Iowa | 117 | | | 5 | 21 | 8 | 42 | 4 | 25 | 2 | 10 | 2.00 to 2.04 |
| 13 | Kansas | 10 | | | | 2 | | 2 | 4 | 2 | | | 2.25 to 2.29 |
| 14 | Kentucky | 98 | | | 1 | | 12 | 85 | | | | | 2.00 to 2.04 |
| 15 | Louisiana | 97 | | 3 | 2 | 1 | 8 | 43 | 16 | 10 | 5 | 9 | 2.00 to 2.04 |
| 16 | Maine | 39 | | | 2 | 25 | 10 | 2 | | | | | 1.60 to 1.64 |
| 17 | Maryland | 4 | | 1 | | 1 | | 2 | | | | | 1.50 to 1.54 |
| 18 | Massachusetts | 519 | | 12 | 24 | 60 | 74 | 227 | 72 | 42 | 5 | 3 | 2.00 to 2.04 |
| 19 | Michigan | 271 | 6 | 2 | 1 | 47 | 57 | 116 | 28 | 11 | 1 | 2 | 2.00 to 2.04 |
| 20 | Minnesota | 120 | | 2 | | 11 | 9 | 6 | 84 | 1 | 3 | 4 | 2.25 to 2.29 |
| 21 | Mississippi | 5 | | | 1 | 2 | | 1 | 1 | | | | 1.50 to 1.54 |
| 22 | Missouri | 163 | | | 2 | 15 | 46 | 51 | 25 | 11 | 4 | 9 | 2.00 to 2.04 |
| 23 | Montana | 8 | | | | | | | | 1 | | 7 | 4.00 to 4.04 |
| 24 | Nebraska | 52 | | | | | 5 | 45 | | 2 | | | 2.00 to 2.04 |
| 25 | New Hampshire | 19 | | | | 1 | 4 | 11 | 2 | 1 | | | 2.00 to 2.04 |
| 26 | New Jersey | 424 | | 11 | 3 | 65 | 98 | 78 | 74 | 78 | 13 | 4 | 2.00 to 2.04 |
| 27 | New York | 1,316 | 1 | 2 | 44 | 210 | 125 | 163 | 258 | 274 | 125 | 114 | 2.25 to 2.29 |
| 28 | North Carolina | 8 | 2 | 5 | | | | 1 | | | | | 1.00 to 1.04 |
| 29 | Ohio | 507 | 3 | | 2 | 115 | 78 | 167 | 94 | 31 | 11 | 6 | 2.00 to 2.04 |
| 30 | Oregon | 43 | | | | | | | | 6 | 27 | 10 | 2.75 to 2.79 |
| 31 | Pennsylvania | 1,213 | 3 | 2 | 36 | 160 | 304 | 299 | 113 | 208 | 65 | 28 | 2.00 to 2.04 |
| 32 | Rhode Island | 5 | | | | 3 | 2 | | | | | | 1.55 to 1.59 |
| 33 | South Carolina | 10 | | | 1 | 7 | 1 | | | | | 1 | 1.50 to 1.54 |
| 34 | Tennessee | 66 | | 3 | 6 | 4 | 8 | 22 | 7 | 7 | 4 | 5 | 2.00 to 2.04 |
| 35 | Texas | 43 | | | 4 | 11 | 5 | 9 | 7 | 1 | 3 | 3 | 2.00 to 2.04 |
| 36 | Utah | 32 | | | 7 | | 2 | 13 | | | 8 | 2 | 2.00 to 2.04 |
| 37 | Vermont | 3 | | | 1 | | 1 | | | 1 | | | 1.75 to 1.79 |
| 38 | Virginia | 31 | | 1 | 5 | 4 | 7 | 4 | 7 | 1 | | 2 | 1.75 to 1.79 |
| 39 | Washington | 61 | | | | | | 28 | | 10 | 1 | 22 | 2.50 to 2.54 |
| 40 | West Virginia | 20 | | | 1 | 6 | | 5 | 5 | 2 | 1 | | 2.00 to 2.04 |
| 41 | Wisconsin | 103 | | | 8 | 4 | 18 | 40 | 12 | 9 | 7 | 5 | 2.00 to 2.04 |
| 42 | All other states[1] | 112 | | | 1 | 29 | 23 | 19 | 4 | 28 | 6 | 2 | 2.00 to 2.04 |

[1] Includes states having less than 3 companies, in order that the operations of individual companies may not be disclosed. These companies are distributed as follows: Arizona, 1; District of Columbia, 2 (8 reports); Idaho, 1; New Mexico, 1.

MEDIAN RATE, ON ELECTRIC SURFACE RAILWAYS, BY STATES: 1902—Continued.

| ALL OTHER CLASSES. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total. | Number at specified daily rates of pay. | | | | | | | | | | Median rate (dollars). | |
| | Less than $1.00. | $1.00 to $1.24. | $1.25 to $1.49. | $1.50 to $1.74. | $1.75 to $1.99. | $2.00 to $2.24. | $2.25 to $2.49. | $2.50 to $2.74. | $2.75 to $2.99. | $3.00 and over. | | |
| 10,086 | 70 | 295 | 562 | 2,100 | 1,223 | 1,953 | 1,213 | 1,359 | 470 | 791 | 2.00 to 2.04 | 1 |
| 37 | ..... | 9 | 5 | 8 | ..... | 7 | ..... | 6 | ..... | 2 | 1.70 to 1.74 | 2 |
| 17 | 1 | ..... | 4 | 5 | 1 | 3 | 1 | 1 | 1 | ..... | 1.65 to 1.69 | 3 |
| 452 | 2 | 6 | 2 | 21 | 74 | 61 | 52 | 74 | 44 | 116 | 2.50 to 2.54 | 4 |
| 90 | ..... | ..... | 1 | ..... | 15 | 9 | 7 | 18 | 13 | 27 | 2.50 to 2.54 | 5 |
| 271 | ..... | 4 | 5 | 53 | 36 | 71 | 37 | 37 | 7 | 21 | 2.00 to 2.04 | 6 |
| 17 | ..... | ..... | ..... | 1 | 5 | 2 | 1 | 7 | ..... | 1 | 2.25 to 2.29 | 7 |
| 33 | 1 | ..... | 2 | 6 | 7 | 3 | 11 | 1 | ..... | 2 | 2.00 to 2.04 | 8 |
| 186 | 3 | 39 | 15 | 51 | 7 | 58 | 9 | 2 | ..... | 2 | 1.65 to 1.69 | 9 |
| 539 | 1 | 6 | 7 | 167 | 129 | 89 | 36 | 33 | 32 | 39 | 1.75 to 1.79 | 10 |
| 262 | 11 | 15 | 14 | 100 | 27 | 38 | 32 | 16 | 3 | 6 | 1.60 to 1.64 | 11 |
| 160 | 3 | 6 | 19 | 26 | 18 | 27 | 29 | 18 | 4 | 10 | 2.00 to 2.04 | 12 |
| 23 | ..... | 1 | 2 | 3 | 6 | 5 | 1 | 2 | 2 | 1 | 1.75 to 1.79 | 13 |
| 145 | ..... | 7 | 12 | 28 | 8 | 16 | 39 | 33 | ..... | 2 | 2.25 to 2.29 | 14 |
| 144 | 9 | 3 | 15 | 23 | 33 | 5 | 28 | 11 | 8 | 9 | 1.95 to 1.99 | 15 |
| 135 | ..... | 3 | 1 | 49 | 24 | 14 | 38 | 5 | ..... | 1 | 1.85 to 1.89 | 16 |
| 8 | 1 | 1 | ..... | 6 | ..... | ..... | ..... | ..... | ..... | ..... | 1.50 to 1.54 | 17 |
| 498 | ..... | 15 | 7 | 49 | 49 | 157 | 89 | 90 | 14 | 28 | 2.00 to 2.04 | 18 |
| 362 | 1 | 5 | 41 | 71 | 79 | 79 | 34 | 26 | 8 | 18 | 1.80 to 1.84 | 19 |
| 134 | ..... | ..... | 16 | 15 | 43 | 14 | 34 | 11 | ..... | 1 | 1.90 to 1.94 | 20 |
| 19 | ..... | 2 | 5 | 3 | 1 | 3 | 3 | ..... | 1 | 1 | 1.70 to 1.74 | 21 |
| 247 | ..... | 6 | 9 | 44 | 61 | 31 | 38 | 36 | 14 | 8 | 2.00 to 2.04 | 22 |
| 21 | 1 | ..... | ..... | ..... | ..... | ..... | ..... | 3 | ..... | 17 | 3.50 to 3.54 | 23 |
| 26 | ..... | ..... | 5 | 1 | ..... | 3 | 6 | 9 | 1 | 1 | 2.25 to 2.29 | 24 |
| 38 | ..... | ..... | ..... | 11 | 10 | 10 | 1 | 4 | ..... | 2 | 1.85 to 1.89 | 25 |
| 503 | 3 | 35 | 10 | 94 | 24 | 201 | 58 | 39 | 12 | 27 | 2.10 to 2.14 | 26 |
| 2,789 | 1 | 7 | 184 | 524 | 292 | 521 | 342 | 477 | 155 | 286 | 2.00 to 2.04 | 27 |
| 56 | 7 | 23 | 12 | 3 | 6 | 5 | ..... | ..... | ..... | ..... | 1.15 to 1.19 | 28 |
| 632 | 16 | 6 | 27 | 188 | 72 | 140 | 78 | 73 | 15 | 17 | 2.00 to 2.04 | 29 |
| 37 | ..... | 1 | ..... | 1 | 5 | 6 | 2 | 7 | 1 | 14 | 2.50 to 2.54 | 30 |
| 1,171 | 2 | 32 | 46 | 375 | 79 | 171 | 116 | 198 | 94 | 58 | 2.00 to 2.04 | 31 |
| 26 | ..... | ..... | 2 | 2 | 2 | 11 | ..... | 5 | 1 | 3 | 2.10 to 2.14 | 32 |
| 53 | 2 | 6 | 2 | 11 | 8 | 17 | 5 | ..... | 1 | 1 | 1.85 to 1.89 | 33 |
| 109 | 1 | 33 | 16 | 12 | 9 | 14 | 10 | 7 | 1 | 6 | 1.50 to 1.54 | 34 |
| 53 | ..... | 1 | 2 | 12 | 5 | 10 | 8 | 7 | 3 | 5 | 2.00 to 2.04 | 35 |
| 13 | ..... | ..... | ..... | 1 | 4 | 1 | ..... | 4 | 1 | 2 | 2.60 to 2.64 | 36 |
| 19 | ..... | ..... | 5 | 8 | ..... | 4 | ..... | 2 | ..... | ..... | 1.50 to 1.54 | 37 |
| 127 | ..... | 18 | 22 | 33 | 8 | 25 | 10 | 10 | ..... | 1 | 1.65 to 1.69 | 38 |
| 177 | ..... | 1 | 1 | 3 | 29 | 8 | 6 | 58 | 29 | 42 | 2.50 to 2.54 | 39 |
| 53 | ..... | ..... | 4 | 17 | ..... | 16 | 5 | 6 | ..... | 5 | 2.00 to 2.04 | 40 |
| 215 | 4 | 2 | 4 | 40 | 41 | 80 | 31 | 6 | 4 | 3 | 2.00 to 2.04 | 41 |
| 139 | ..... | 2 | 38 | 35 | 6 | 18 | 16 | 17 | 1 | 6 | 1.50 to 1.54 | 42 |

SUPPLEMENTARY TABLE 1.—BRIDGES AND TUNNELS OWNED BY STREET RAILWAY COMPANIES.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | BRIDGES. | | | | | | | | TUNNELS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Iron and steel. | | Wooden. | | Wooden trestles or trestle bridges. | | Masonry. | | | |
| | | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. |
| | UNITED STATES | 2,748 | 480,912 | 1,024 | 156,061 | 574 | 57,152 | 931 | 242,458 | 192 | 5,438 | 27 | 19,803 |
| | ALABAMA. | | | | | | | | | | | | |
| | Total for state | 29 | 2,856 | | | 6 | 180 | 18 | 2,454 | 5 | 222 | | |
| 1 | Anniston Electric and Gas | 9 | 476 | | | | | 4 | 254 | 5 | 222 | | |
| 2 | Birmingham Railway, Light and Power | 10 | 2,140 | | | | | 10 | 2,140 | | | | |
| 4 | Alabama City, Gadsden and Attalla | 2 | 120 | | | 2 | 120 | | | | | | |
| 5 | Huntsville Railway, Light and Power | 2 | 12 | | | 2 | 12 | | | | | | |
| 6 | Mobile Light and Railroad | 4 | 60 | | | | | 4 | 60 | | | | |
| 9 | Tuscaloosa Belt Railway | 2 | 48 | | | 2 | 48 | | | | | | |
| | ARIZONA. | | | | | | | | | | | | |
| | Total for territory | 9 | 225 | | | | | 9 | 225 | | | | |
| 1 | Phoenix Railway | 6 | 75 | | | | | 6 | 75 | | | | |
| 2 | Tucson Street Railway | 3 | 150 | | | | | 3 | 150 | | | | |
| | ARKANSAS. | | | | | | | | | | | | |
| | Total for state | 8 | 949 | | | 3 | 140 | 5 | 809 | | | | |
| 2 | Fort Smith Traction | 1 | 24 | | | | | 1 | 24 | | | | |
| 3 | Fort Smith and Van Buren | 1 | 20 | | | 1 | 20 | | | | | | |
| 5 | Little Rock Traction and Electric | 2 | 120 | | | 2 | 120 | | | | | | |
| 6 | Citizens Light and Transit | 4 | 785 | | | | | 4 | 785 | | | | |
| | CALIFORNIA. | | | | | | | | | | | | |
| | Total for state | 57 | 11,913 | 6 | 4,947 | 38 | 4,121 | 7 | 1,782 | 3 | 300 | 3 | 763 |
| 6 | Los Angeles Railway | 4 | 4,400 | 4 | 4,400 | | | | | | | | |
| 7 | Los Angeles and Pasadena | 5 | 2,445 | 2 | 547 | 2 | 1,133 | 1 | 765 | | | | |
| 14 | Oakland Transit Consolidated | 2 | 816 | | | | | 2 | 816 | | | | |
| 15 | Ontario and San Antonio Heights | 2 | 200 | | | | | | | 2 | 200 | | |
| 16 | Pasadena and Mt. Lowe | 20 | 1,328 | | | 20 | 1,328 | | | | | | |
| 20 | Redlands Street Railway | 3 | 96 | | | 2 | 60 | 1 | 36 | | | | |
| 21 | Riverside and Arlington | 2 | 40 | | | | | 2 | 40 | | | | |
| 22 | Sacramento Electric, Gas and Railway | 2 | 50 | | | 2 | 50 | | | | | | |
| 23 | San Bernardino Valley | 3 | 460 | | | 3 | 460 | | | | | | |
| 28 | United Railroads of San Francisco | 4 | 625 | | | | | 1 | 125 | 1 | 100 | 2 | 400 |
| 30 | San Jose and Santa Clara | 8 | 813 | | | 7 | 450 | | | | | 1 | 363 |
| 33 | East Santa Cruz | 2 | 640 | | | 2 | 640 | | | | | | |
| | COLORADO. | | | | | | | | | | | | |
| | Total for state | 26 | 8,094 | 5 | 6,380 | 9 | 420 | 12 | 1,294 | | | | |
| 2 | Colorado Springs and Cripple Creek | 6 | 944 | | | | | 6 | 944 | | | | |
| 3 | Colorado Springs Rapid Transit | 11 | 670 | 2 | 250 | 9 | 420 | | | | | | |
| 4 | Denver, Lakewood and Golden | 7 | 480 | 1 | 130 | | | 6 | 350 | | | | |
| 5 | Denver City Tramway | 2 | 6,000 | 2 | 6,000 | | | | | | | | |
| | CONNECTICUT. | | | | | | | | | | | | |
| | Total for state | 57 | 5,900 | 35 | 3,680 | 7 | 544 | 12 | 1,624 | 3 | 52 | | |
| 1 | Branford Lighting and Water | 1 | 175 | | | 1 | 175 | | | | | | |
| 2 | Connecticut Railway and Lighting | 13 | 2,500 | 6 | 1,200 | | | 7 | 1,300 | | | | |
| 3 | Bristol and Plainville Tramway | 5 | 240 | 1 | 85 | 3 | 30 | 1 | 125 | | | | |
| 5 | Greenwich Tramway | 1 | 146 | 1 | 146 | | | | | | | | |
| 6 | Hartford and Springfield | 2 | 340 | 1 | 40 | 1 | 300 | | | | | | |
| 7 | Farmington Street Railway | 2 | 165 | 1 | 140 | 1 | 25 | | | | | | |
| 8 | Hartford Street Railway | 10 | 507 | 4 | 342 | 1 | 14 | 2 | 99 | 3 | 52 | | |
| 9 | Hartford, Manchester and Rockville | 7 | 425 | 7 | 425 | | | | | | | | |
| 11 | Meriden, Southington and Compounce | 4 | 240 | 4 | 240 | | | | | | | | |
| 15 | Fair Haven and Westville | 2 | 100 | | | | | 2 | 100 | | | | |
| 17 | Montville Street Railway | 4 | 530 | 4 | 530 | | | | | | | | |
| 19 | Peoples Tramway | 3 | 182 | 3 | 182 | | | | | | | | |
| 23 | Torrington and Winchester | 3 | 350 | 3 | 350 | | | | | | | | |
| | DELAWARE. | | | | | | | | | | | | |
| | Total for state | 19 | 2,366 | 7 | 1,421 | 1 | 300 | 11 | 645 | | | | |
| 1 | Wilmington and New Castle | 6 | 470 | 2 | 375 | | | 4 | 95 | | | | |
| 2 | Peoples Railway | 10 | 985 | 4 | 485 | 1 | 300 | 5 | 200 | | | | |
| 3 | Wilmington City | 3 | 911 | 1 | 561 | | | 2 | 350 | | | | |
| | DISTRICT OF COLUMBIA. | | | | | | | | | | | | |
| | Total for District | 25 | 3,912 | 22 | 3,841 | 3 | 71 | | | | | | |
| 3 | Capital Traction | 2 | 1,117 | 2 | 1,117 | | | | | | | | |
| 4 | City and Suburban of Washington | 4 | 239 | 2 | 212 | 2 | 27 | | | | | | |
| 5 | Columbia Railway | 5 | 677 | 4 | 633 | 1 | 44 | | | | | | |
| 6 | Georgetown and Tennallytown | 1 | 12 | 1 | 12 | | | | | | | | |
| 8 | Washington and Great Falls | 13 | 1,867 | 13 | 1,867 | | | | | | | | |
| | FLORIDA. | | | | | | | | | | | | |
| | Total for state | 2 | 270 | | | | | 2 | 270 | | | | |
| 2 | Jacksonville Electric | 1 | 220 | | | | | 1 | 220 | | | | |
| 6 | Tampa Electric | 1 | 50 | | | | | 1 | 50 | | | | |

SUPPLEMENTARY TABLE 1.—BRIDGES AND TUNNELS OWNED BY STREET RAILWAY COMPANIES—Continued.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | BRIDGES. | | | | | | | | TUNNELS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Iron and steel. | | Wooden. | | Wooden trestles or trestle bridges. | | Masonry. | | | |
| | | Number. | Length, feet. | Number. | Length, feet. | Number. | Length feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. |
| | GEORGIA. | | | | | | | | | | | | |
| | Total for state | 18 | 460 | | | 7 | 150 | 10 | 300 | 1 | 10 | | |
| 4 | Columbus Railroad | 9 | 250 | | | | | 9 | 250 | | | | |
| 5 | Covington and Oxford | 3 | 30 | | | 3 | 30 | | | | | | |
| 6 | Macon Railway and Light | 2 | 60 | | | | | 1 | 50 | 1 | 10 | | |
| 8 | Savannah Electric | 4 | 120 | | | 4 | 120 | | | | | | |
| | ILLINOIS. | | | | | | | | | | | | |
| | Total for state | 101 | 17,320 | 48 | 3,599 | 5 | 875 | 40 | 6,819 | 3 | 56 | 5 | 5,971 |
| 2 | Elgin, Aurora and Southern | 3 | 1,560 | 1 | 40 | 1 | 720 | 1 | 800 | | | | |
| 3 | Bloomington and Normal | 3 | 60 | 3 | 60 | | | | | | | | |
| 10 | Chicago Union Traction | 3 | 5,393 | | | | | | | | | 3 | 5,393 |
| 11 | Chicago Consolidated Traction | 4 | 1,800 | | | | | 4 | 1,800 | | | | |
| 12 | Calumet Electric Street Railway | 1 | 538 | | | | | | | | | 1 | 538 |
| 13 | Chicago Electric Traction | 3 | 40 | 3 | 40 | | | | | | | | |
| 16 | Suburban Railroad | 2 | 120 | | | 2 | 120 | | | | | | |
| 19 | Metropolitan West Side Elevated | 1 | 174 | 1 | 174 | | | | | | | | |
| 21 | Chicago and Milwaukee | 10 | 920 | 4 | 80 | | | 5 | 800 | | | 1 | 40 |
| 22 | Lake Street Elevated Railroad | 1 | 125 | 1 | 125 | | | | | | | | |
| 23 | Chicago and Joliet | 27 | 800 | 27 | 800 | | | | | | | | |
| 26 | Danville, Paxton and Northern | 2 | 210 | 1 | 150 | | | 1 | 60 | | | | |
| 29 | St. Louis and Belleville | 1 | 1,200 | | | | | 1 | 1,200 | | | | |
| 30 | East St. Louis and Suburban | 14 | 1,657 | 1 | 103 | | | 13 | 1,554 | | | | |
| 34 | Galesburg Electric Motor | 1 | 150 | | | | | 1 | 150 | | | | |
| 40 | Coal Belt Electric Railway | 6 | 140 | | | | | 6 | 140 | | | | |
| 42 | Ottawa Railway, Light and Power | 3 | 75 | | | | | 3 | 75 | | | | |
| 43 | Peoria and Prospect Heights | 1 | 350 | 1 | 350 | | | | | | | | |
| 44 | Central Railway | 3 | 76 | 1 | 40 | 1 | 20 | | | 1 | 16 | | |
| 45 | Peoria and Pekin Terminal | 4 | 1,819 | 2 | 1,154 | 1 | 15 | 1 | 150 | | | | |
| 48 | Rockford and Belvidere | 8 | 613 | 2 | 483 | | | 4 | 90 | 2 | 40 | | |
| | INDIANA. | | | | | | | | | | | | |
| | Total for state | 142 | 9,699 | 58 | 6,332 | 27 | 564 | 53 | 2,558 | 3 | 125 | 1 | 120 |
| 4 | Fort Wayne Traction | 4 | 200 | | | | | 4 | 200 | | | | |
| 5 | Fort Wayne and Southwestern | 14 | 590 | 1 | 80 | | | 12 | 390 | | | 1 | 120 |
| 9 | Indianapolis, Shelbyville and Southeastern | 28 | 1,250 | 10 | 950 | 18 | 300 | | | | | | |
| 10 | Indianapolis and Eastern | 6 | 110 | 1 | 60 | 5 | 50 | | | | | | |
| 11 | Union Traction | 44 | 2,901 | 31 | 2,226 | | | 13 | 675 | | | | |
| 12 | Indianapolis, Greenwood and Franklin | 3 | 135 | | | | | 2 | 90 | 1 | 45 | | |
| 14 | Kokomo Railway and Light | 2 | 24 | | | 2 | 24 | | | | | | |
| 15 | Lafayette Street Railway | 2 | 1,000 | 2 | 1,000 | | | | | | | | |
| 20 | Highland Railroad | 2 | 150 | | | | | 2 | 150 | | | | |
| 22 | Richmond Street and Interurban | 7 | 885 | 5 | 600 | 1 | 175 | | | 1 | 60 | | |
| 23 | Indiana Railway | 11 | 905 | | | | | 10 | 885 | 1 | 20 | | |
| 24 | Terre Haute Electric | 8 | 1,891 | 7 | 1,376 | 1 | 15 | | | | | | |
| 26 | Wabash River Traction | 11 | 208 | 1 | 40 | | | 10 | 168 | | | | |
| | IOWA. | | | | | | | | | | | | |
| | Total for state | 45 | 9,307 | 7 | 5,320 | 22 | 3,474 | 16 | 513 | | | | |
| 1 | Boone Electric | 3 | 200 | | | 3 | 200 | | | | | | |
| 3 | Cedar Rapids and Marion City | 2 | 270 | | | 1 | 64 | 1 | 206 | | | | |
| 6 | Omaha and Council Bluffs | 2 | 3,326 | 1 | 3,266 | 1 | 60 | | | | | | |
| 7 | Tri-City Railway | 2 | 536 | 2 | 536 | | | | | | | | |
| 8 | Des Moines City Railway | 1 | 600 | 1 | 600 | | | | | | | | |
| 9 | Interurban Railway | 14 | 1,800 | | | 14 | 1,800 | | | | | | |
| 10 | Union Electric | 12 | 107 | | | | | 12 | 107 | | | | |
| 16 | Mason City and Clear Lake | 3 | 200 | | | | | 3 | 200 | | | | |
| 20 | Sioux City Traction | 4 | 950 | 2 | 600 | 2 | 350 | | | | | | |
| 22 | Waterloo and Cedar Falls | 2 | 1,318 | 1 | 318 | 1 | 1,000 | | | | | | |
| | KANSAS. | | | | | | | | | | | | |
| | Total for state | 19 | 3,187 | 2 | 380 | 7 | 2,400 | 5 | 132 | 5 | 275 | | |
| 5 | Iola Electric Railroad | 8 | 375 | | | | | 3 | 100 | 5 | 275 | | |
| 6 | Electric Railway and Ice | 1 | 320 | 1 | 320 | | | | | | | | |
| 8 | Pittsburg Railroad | 1 | 300 | | | 1 | 300 | | | | | | |
| 10 | Topeka Railway | 4 | 1,160 | 1 | 60 | 3 | 1,100 | | | | | | |
| 11 | Wichita Railroad and Light | 5 | 1,082 | | | 3 | 1,000 | 2 | 32 | | | | |
| | KENTUCKY. | | | | | | | | | | | | |
| | Total for state | 11 | 1,140 | 3 | 420 | 2 | 125 | 6 | 595 | | | | |
| 2 | Cincinnati, Newport and Covington | 4 | 325 | 1 | 250 | | | 3 | 75 | | | | |
| 5 | Lexington Railway | 1 | 30 | 1 | 30 | | | | | | | | |
| 6 | Georgetown and Lexington | 1 | 105 | | | 1 | 105 | | | | | | |
| 8 | Louisville, Anchorage and Pewee | 2 | 210 | 1 | 140 | | | 1 | 70 | | | | |
| 10 | Maysville Street Railroad | 2 | 450 | | | | | 2 | 450 | | | | |
| 12 | Paducah City Railway | 1 | 20 | | | 1 | 20 | | | | | | |
| | LOUISIANA. | | | | | | | | | | | | |
| | Total for state | 1 | 150 | | | 1 | 150 | | | | | | |
| 8 | Shreveport Belt Railway | 1 | 150 | | | 1 | 150 | | | | | | |
| | MAINE. | | | | | | | | | | | | |
| | Total for state | 31 | 10,665 | 10 | 1,684 | 4 | 1,350 | 17 | 7,631 | | | | |
| 3 | Penobscot Central Railway | 2 | 200 | | | 2 | 200 | | | | | | |
| 4 | Bangor, Orono and Old Town | 3 | 212 | 2 | 200 | | | 1 | 12 | | | | |
| 5 | Bangor, Hampden and Winterport | 1 | 54 | | | | | 1 | 54 | | | | |
| 8 | Benton and Fairfield | 2 | 300 | 2 | 300 | | | | | | | | |

SUPPLEMENTARY TABLE 1.—BRIDGES AND TUNNELS OWNED BY STREET RAILWAY COMPANIES—Continued.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | BRIDGES. | | | | | | | | TUNNELS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Iron and steel. | | Wooden. | | Wooden trestles or trestle bridges. | | Masonry. | | | |
| | | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. |
| | MAINE—Continued. | | | | | | | | | | | | |
| 11 | Lewiston, Brunswick and Bath | 3 | 1,526 | 2 | 986 | 1 | 540 | | | | | | |
| 13 | Portland Railroad | 2 | 538 | 1 | 38 | | | 1 | 500 | | | | |
| 14 | Portsmouth, Kittery and York | 8 | 5,240 | 2 | 100 | 1 | 610 | 5 | 4,530 | | | | |
| 15 | Rockland, Thomaston and Camden | 1 | 1,300 | | | | | 1 | 1,300 | | | | |
| 16 | Sanford and Cape Porpoise | 3 | 760 | 1 | 60 | | | 2 | 700 | | | | |
| 17 | Skowhegan and Norridgewock Railway and Power | 2 | 100 | | | | | 2 | 100 | | | | |
| 18 | Somerset Traction | 3 | 375 | | | | | 3 | 375 | | | | |
| 19 | Waterville and Fairfield Railway and Light | 1 | 60 | | | | | 1 | 60 | | | | |
| | MARYLAND. | | | | | | | | | | | | |
| | Total for state | 45 | 23,859 | 19 | 9,225 | 17 | 12,084 | 8 | 2,510 | 1 | 40 | | |
| 1 | United Railways | 25 | 21,000 | 13 | 9,000 | 12 | 12,000 | | | | | | |
| 3 | Frederick and Middletown | 7 | 1,850 | | | | | 7 | 1,850 | | | | |
| 4 | Kensington Railway | 2 | 700 | | | | | 1 | 660 | 1 | 40 | | |
| 7 | Baltimore and Washington | 1 | 50 | 1 | 50 | | | | | | | | |
| 8 | Washington and Glen Echo | 8 | 197 | 3 | 113 | 5 | 84 | | | | | | |
| 9 | Washington and Rockville | 2 | 62 | 2 | 62 | | | | | | | | |
| | MASSACHUSETTS. | | | | | | | | | | | | |
| | Total for state | 232 | 32,594 | 107 | 11,187 | 47 | 3,347 | 32 | 8,866 | 45 | 640 | 1 | 8,554 |
| 1 | Amherst and Sunderland | 9 | 400 | 2 | 33 | 3 | 147 | | | 4 | 220 | | |
| 3 | Lexington and Boston | 3 | 54 | 3 | 54 | | | | | | | | |
| 4 | Old Colony Street Railway | 16 | 3,317 | 9 | 1,103 | 1 | 32 | 6 | 2,182 | | | | |
| 5 | Boston and Northern | 14 | 1,901 | 6 | 949 | 3 | 57 | 5 | 895 | | | | |
| 6 | Boston Elevated Railway | 1 | 8,554 | | | | | | | | | 1 | 8,554 |
| 7 | Lowell and Boston | 3 | 474 | 1 | 52 | 1 | 20 | 1 | 402 | | | | |
| 9 | Blue Hill Street Railway | 1 | 40 | | | 1 | 40 | | | | | | |
| 10 | Hoosac Valley | 5 | 270 | 3 | 160 | | | 1 | 70 | 1 | 40 | | |
| 11 | Concord, Maynard and Hudson | 4 | 475 | 1 | 100 | | | 3 | 375 | | | | |
| 12 | Conway Electric Railway | 3 | 686 | 3 | 686 | | | | | | | | |
| 16 | Providence and Fall River | 7 | 650 | 4 | 160 | 2 | 40 | 1 | 450 | | | | |
| 17 | Dartmouth and Westport | 1 | 195 | | | 1 | 195 | | | | | | |
| 18 | Fitchburg and Leominster | 2 | 154 | 2 | 154 | | | | | | | | |
| 20 | Gardner, Westminster and Fitchburg | 3 | 80 | | | 2 | 50 | | | 1 | 30 | | |
| 21 | Greenfield and Turners Falls | 2 | 800 | 1 | 600 | 1 | 200 | | | | | | |
| 23 | Haverhill, Georgetown and Danvers | 1 | 500 | | | 1 | 500 | | | | | | |
| 24 | Haverhill and Amesbury | 1 | 20 | | | 1 | 20 | | | | | | |
| 25 | Holyoke Street Railway | 1 | 40 | 1 | 40 | | | | | | | | |
| 26 | Lawrence and Reading | 2 | 87 | | | | | 2 | 87 | | | | |
| 28 | Middleton and Danvers | 1 | 150 | 1 | 150 | | | | | | | | |
| 29 | Norfolk and Bristol | 1 | 50 | | | | | 1 | 50 | | | | |
| 32 | Medfield and Medway | 1 | 80 | | | 1 | 80 | | | | | | |
| 33 | Middleboro, Wareham and Buzzards Bay | 9 | 1,587 | 3 | 88 | 6 | 1,499 | | | | | | |
| 35 | Milford and Uxbridge | 7 | 700 | 6 | 500 | | | 1 | 200 | | | | |
| 37 | South Middlesex Street Railway | 4 | 150 | 2 | 75 | 2 | 75 | | | | | | |
| 39 | New Bedford and Onset | 1 | 60 | 1 | 60 | | | | | | | | |
| 40 | Citizens Electric Railway | 2 | 100 | 2 | 100 | | | | | | | | |
| 41 | Georgetown, Rowley and Ipswich | 2 | 325 | 1 | 300 | 1 | 25 | | | | | | |
| 46 | Northampton Street Railway | 4 | 283 | 3 | 203 | | | 1 | 80 | | | | |
| 47 | Northampton and Amherst | 4 | 1,338 | 2 | 1,308 | | | 2 | 30 | | | | |
| 49 | Norton and Taunton | 5 | 128 | 4 | 110 | 1 | 18 | | | | | | |
| 51 | Pittsfield Electric | 9 | 160 | 3 | 120 | | | | | 6 | 40 | | |
| 54 | Norwood, Canton and Sharon | 3 | 60 | 1 | 40 | 2 | 20 | | | | | | |
| 55 | Shelburne Falls and Coleraine | 2 | 135 | 2 | 135 | | | | | | | | |
| 56 | Southbridge and Sturbridge | 1 | 70 | 1 | 70 | | | | | | | | |
| 57 | Hampshire Street Railway | 1 | 33 | 1 | 32 | | | | | | | | |
| 58 | Springfield Street Railway | 5 | 75 | | | | | | | 5 | 75 | | |
| 59 | Springfield and Eastern | 6 | 580 | 5 | 520 | | | 1 | 60 | | | | |
| 61 | East Taunton Street Railway | 1 | 40 | 1 | 40 | | | | | | | | |
| 62 | Bristol County | 2 | 2,000 | 1 | 800 | | | 1 | 1,200 | | | | |
| 63 | Templeton Street Railway | 2 | 70 | 2 | 70 | | | | | | | | |
| 64 | Marthas Vineyard | 1 | 550 | | | | | 1 | 550 | | | | |
| 66 | Reading, Wakefield and Lynnfield | 1 | 35 | | | | | 1 | 35 | | | | |
| 67 | Hampshire and Worcester | 31 | 210 | 4 | 75 | | | | | 27 | 135 | | |
| 68 | Warren, Brookfield and Spencer | 9 | 130 | | | 9 | 130 | | | | | | |
| 69 | Webster and Dudley | 2 | 110 | 2 | 110 | | | | | | | | |
| 70 | Woronoco Street Railway | 4 | 590 | 3 | 490 | | | | | 1 | 100 | | |
| 72 | Worcester Consolidated | 14 | 2,268 | 4 | 249 | 7 | 169 | 3 | 1,850 | | | | |
| 73 | Worcester and Blackstone Valley | 6 | 580 | 4 | 200 | 1 | 30 | 1 | 350 | | | | |
| 74 | Worcester and Southbridge | 11 | 1,200 | 11 | 1,200 | | | | | | | | |
| 75 | Worcester and Webster | 1 | 50 | 1 | 50 | | | | | | | | |
| | MICHIGAN. | | | | | | | | | | | | |
| | Total for state | 94 | 19,719 | 22 | 4,054 | 9 | 848 | 58 | 14,287 | 1 | 400 | 4 | 130 |
| 4 | Detroit United Railway | 9 | 2,860 | 1 | 70 | | | 6 | 2,350 | 1 | 400 | 1 | 40 |
| 5 | Detroit and Port Huron Shore Line | 10 | 2,109 | 2 | 450 | | | 8 | 1,659 | | | | |
| 6 | Detroit, Ypsilanti, Ann Arbor and Jackson | 2 | 256 | 2 | 256 | | | | | | | | |
| 7 | Escanaba Electric Railway | 1 | 16 | | | | | 1 | 16 | | | | |
| 8 | Grand Rapids Railway | 1 | 600 | 1 | 600 | | | | | | | | |
| 9 | Grand Rapids, Grand Haven and Muskegon | 17 | 3,428 | 11 | 480 | 4 | 48 | 2 | 2,900 | | | | |
| 10 | Grand Rapids, Holland and Lake Michigan | 13 | 1,290 | | | | | 10 | 1,200 | | | 3 | 90 |
| 11 | Houghton County Street Railway | 7 | 335 | | | 2 | 20 | 5 | 315 | | | | |
| 12 | Twin City General Electric | 1 | 1,000 | | | | | 1 | 1,000 | | | | |
| 13 | Negaunee and Ishpeming | 1 | 30 | | | 1 | 30 | | | | | | |
| 14 | Jackson and Suburban Traction | 3 | 648 | 1 | 168 | | | 2 | 480 | | | | |
| 15 | Michigan Traction | 11 | 1,637 | | | | | 11 | 1,637 | | | | |
| 18 | Marquette and Presque Isle | 1 | 740 | | | 1 | 740 | | | | | | |
| 20 | Toledo and Monroe | 8 | 2,370 | 1 | 40 | | | 7 | 2,330 | | | | |
| 21 | Muskegon Traction and Lighting | 1 | 10 | | | 1 | 10 | | | | | | |
| 22 | Detroit, Plymouth and Northville | 3 | 325 | 1 | 25 | | | 2 | 300 | | | | |
| 24 | Saginaw Valley Traction | 5 | 2,065 | 2 | 1,965 | | | 3 | 100 | | | | |

SUPPLEMENTARY TABLE 1.—BRIDGES AND TUNNELS OWNED BY STREET RAILWAY COMPANIES—Continued.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | BRIDGES. | | | | | | | | TUNNELS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Iron and steel. | | Wooden. | | Wooden trestles or trestle bridges. | | Masonry. | | | |
| | | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. |
| | MINNESOTA. | | | | | | | | | | | | |
| | Total for state | 2 | 1,860 | | | 1 | 60 | 1 | 1,800 | | | | |
| 2 | Duluth-Superior Traction | 1 | 60 | | | 1 | 60 | | | | | | |
| 5 | Winona Railway and Light | 1 | 1,800 | | | | | 1 | 1,800 | | | | |
| | MISSISSIPPI. | | | | | | | | | | | | |
| | Total for state | 8 | 322 | | | 1 | 20 | 7 | 302 | | | | |
| 3 | Meridian Light and Railway | 5 | 160 | | | 1 | 20 | 4 | 140 | | | | |
| 5 | Vicksburg Railroad, Power and Manufacturing | 3 | 162 | | | | | 3 | 162 | | | | |
| | MISSOURI. | | | | | | | | | | | | |
| | Total for state | 93 | 20,918 | 35 | 13,135 | 4 | 432 | 50 | 6,491 | 3 | 60 | 1 | 800 |
| 2 | Carrollton Electric Railway | 4 | 475 | | | 1 | 70 | 3 | 405 | | | | |
| 4 | Hannibal Railway and Electric | 4 | 72 | | | 1 | 12 | | | 3 | 60 | | |
| 5 | Southwest Missouri Electric Railway | 10 | 1,949 | 2 | 160 | | | 8 | 1,789 | | | | |
| 6 | Metropolitan | 19 | 14,137 | 16 | 11,729 | 1 | 150 | 1 | 1,458 | | | 1 | 800 |
| 7 | Missouri Water, Light and Traction | 1 | 20 | | | | | 1 | 20 | | | | |
| 8 | St. Joseph Railway, Light, Heat and Power | 3 | 115 | 1 | 40 | | | 2 | 75 | | | | |
| 9 | St. Louis Transit | 23 | 2,018 | 12 | 586 | | | 11 | 1,432 | | | | |
| 10 | St. Louis and Suburban | 6 | 285 | 1 | 60 | | | 5 | 225 | | | | |
| 11 | St. Louis and Meramec River | 3 | 600 | 1 | 500 | | | 2 | 100 | | | | |
| 12 | St. Louis and Kirkwood | 10 | 520 | 2 | 60 | 1 | 200 | 7 | 260 | | | | |
| 13 | St. Louis, St. Charles and Western | 8 | 700 | | | | | 8 | 700 | | | | |
| 14 | Railway and Electric of Sedalia | 2 | 27 | | | | | 2 | 27 | | | | |
| | MONTANA. | | | | | | | | | | | | |
| | Total for state | 7 | 615 | 2 | 150 | 1 | 50 | 4 | 415 | | | | |
| 1 | Anaconda Copper Mining | 1 | 40 | | | | | 1 | 40 | | | | |
| 3 | Butte Electric Railway | 5 | 525 | 2 | 150 | | | 3 | 375 | | | | |
| 5 | Helena Power and Light | 1 | 50 | | | 1 | 50 | | | | | | |
| | NEBRASKA. | | | | | | | | | | | | |
| | Total for statem | 15 | 756 | | | 15 | 756 | | | | | | |
| 1 | Lincoln Traction | 15 | 756 | | | 15 | 756 | | | | | | |
| | NEW HAMPSHIRE. | | | | | | | | | | | | |
| | Total for state | 9 | 6,285 | 3 | 205 | 4 | 5,380 | 2 | 700 | | | | |
| 3 | Exeter, Hampton and Amesbury | 4 | 5,405 | 1 | 75 | 3 | 5,330 | | | | | | |
| 4 | Keene Electric Railway | 2 | 130 | 2 | 130 | | | | | | | | |
| 6 | Manchester Street Railway | 1 | 50 | | | 1 | 50 | | | | | | |
| 7 | Portsmouth Electric Railway | 2 | 700 | | | | | 2 | 700 | | | | |
| | NEW JERSEY. | | | | | | | | | | | | |
| | Total for state | 88 | 25,940 | 34 | 6,973 | 22 | 2,842 | 25 | 16,006 | 7 | 119 | | |
| 2 | Bridgeton and Millville | 7 | 203 | 6 | 82 | | | 1 | 121 | | | | |
| 3 | Brigantine Transportation | 1 | 5,280 | | | | | 1 | 5,280 | | | | |
| 4 | Camden, Gloucester and Woodbury | 3 | 2,267 | 1 | 117 | | | 2 | 2,150 | | | | |
| 5 | Camden and Suburban | 5 | 310 | | | 4 | 298 | | | 1 | 12 | | |
| 7 | Elizabeth, Plainfield and Central Jersey | 2 | 1,500 | | | 2 | 1,500 | | | | | | |
| 8 | New Jersey and Hudson River Railway and Ferry | 9 | 2,587 | 7 | 1,927 | | | 2 | 610 | | | | |
| 9 | Jersey City, Hoboken and Paterson | 5 | 1,150 | 3 | 150 | | | 2 | 1,000 | | | | |
| 10 | North Jersey Street Railway | 4 | 3,615 | 2 | 1,500 | | | 2 | 2,115 | | | | |
| 11 | Jersey Central Traction | 2 | 75 | | | 2 | 75 | | | | | | |
| 12 | Monmouth County Electric | 4 | 950 | 2 | 50 | | | 2 | 900 | | | | |
| 13 | Atlantic Coast Electric Railroad | 9 | 4,925 | 2 | 2,120 | 1 | 325 | 6 | 2,480 | | | | |
| 14 | Millville Traction | 3 | 364 | 1 | 60 | 2 | 304 | | | | | | |
| 18 | Orange and Passaic Valley | 3 | 60 | | | 3 | 60 | | | | | | |
| 19 | South Orange and Maplewood | 1 | 12 | 1 | 12 | | | | | | | | |
| 20 | Raritan Traction | 2 | 400 | | | 1 | 100 | 1 | 300 | | | | |
| 23 | Trenton Street Railway | 5 | 510 | 4 | 310 | | | 1 | 200 | | | | |
| 24 | Camden and Trenton | 23 | 1,782 | 5 | 645 | 7 | 180 | 5 | 850 | 6 | 107 | | |
| | NEW YORK. | | | | | | | | | | | | |
| | Total for state | 410 | 43,795 | 203 | 22,285 | 88 | 2,872 | 111 | 15,396 | 6 | 442 | 2 | 2,808 |
| 1 | Albany and Hudson Railway and Power | 20 | 2,996 | 14 | 2,914 | 6 | 82 | | | | | | |
| 3 | Hudson Valley Railway | 38 | 2,298 | 22 | 1,134 | 13 | 639 | 3 | 525 | | | | |
| 4 | Troy and New England | 15 | 450 | | | 10 | 400 | | | 5 | 50 | | |
| 5 | Amsterdam Street Railroad | 4 | 236 | 3 | 176 | | | 1 | 60 | | | | |
| 6 | Auburn City Railway | 2 | 110 | 2 | 110 | | | | | | | | |
| 7 | Auburn Interurban Electric | 1 | 41 | 1 | 41 | | | | | | | | |
| 8 | Ballston Terminal Railroad | 6 | 860 | 2 | 200 | 1 | 60 | 3 | 600 | | | | |
| 9 | Binghamton Railway | 4 | 112 | 4 | 112 | | | | | | | | |
| 10 | International Railway | 67 | 6,206 | 28 | 4,360 | 1 | 40 | 38 | 1,806 | | | | |
| 11 | Crosstown Street Railway | 17 | 5,945 | 16 | 5,553 | | | | | 1 | 392 | | |
| 12 | Buffalo and Depew | 3 | 1,177 | 2 | 252 | | | 1 | 925 | | | | |
| 17 | Cortland County Traction | 8 | 470 | 7 | 370 | | | 1 | 100 | | | | |
| 18 | Corning and Painted Post | 2 | 104 | 1 | 90 | 1 | 14 | | | | | | |
| 21 | Elmira Water, Light and Railroad | 1 | 100 | | | | | 1 | 100 | | | | |
| 24 | Fonda, Johnstown and Gloversville | 3 | 84 | 1 | 51 | | | 2 | 33 | | | | |

SUPPLEMENTARY TABLE 1.—BRIDGES AND TUNNELS OWNED BY STREET RAILWAY COMPANIES—Continued.

| Number. | STATE AND NAME OF COMPANY | TOTAL | | BRIDGES. | | | | | | | | TUNNELS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Iron and steel. | | Wooden. | | Wooden trestles or trestle bridges. | | Masonry. | | | |
| | | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. |
| | NEW YORK—Continued. | | | | | | | | | | | | |
| 26 | Geneva, Waterloo, etc., Traction | 2 | 215 | 1 | 15 | | | 1 | 200 | | | | |
| 27 | Mountain Lake Electric | 6 | 60 | | | 1 | 20 | 5 | 40 | | | | |
| 28 | Bennington and Hoosick Valley | 8 | 359 | 7 | 319 | | | 1 | 40 | | | | |
| 30 | Hornellsville and Canisteo | 3 | 178 | | | | | 3 | 178 | | | | |
| 31 | Huntington Railroad | 1 | 30 | | | 1 | 30 | | | | | | |
| 32 | Ithaca Street Railway | 9 | 620 | 4 | 585 | | | 5 | 35 | | | | |
| 33 | Jamestown Street Railway | 11 | 296 | 11 | 296 | | | | | | | | |
| 34 | Kingston Consolidated | 1 | 1,000 | | | | | | | | | 1 | 1,000 |
| 36 | Lima-Honeoye Light and Railroad | 1 | 19 | | | 1 | 19 | | | | | | |
| 37 | Middletown-Goshen Electric | 5 | 250 | 3 | 210 | 2 | 40 | | | | | | |
| 38 | New York and Long Island Traction | 1 | 10 | | | 1 | 10 | | | | | | |
| 39 | Orange County Traction | 15 | 2,415 | | | 13 | 250 | 2 | 2,165 | | | | |
| 40 | New Paltz and Poughkeepsie | 10 | 869 | 2 | 757 | 8 | 112 | | | | | | |
| 41 | Interurban | 1 | 1,800 | | | | | | | | | 1 | 1,800 |
| 58 | Brooklyn Rapid Transit | 8 | 1,139 | 4 | 357 | 1 | 30 | 3 | 752 | | | | |
| 61 | New York and Queens County | 1 | 60 | | | | | 1 | 60 | | | | |
| 62 | New York and North Shore | 5 | 166 | 1 | 40 | 4 | 126 | | | | | | |
| 64 | Staten Island Electric | 1 | 600 | 1 | 600 | | | | | | | | |
| 65 | Niagara Gorge Railroad | 4 | 335 | 3 | 305 | 1 | 30 | | | | | | |
| 68 | Olean, Rock City and Bradford | 5 | 900 | | | 1 | 300 | 4 | 600 | | | | |
| 69 | Olean Street Railway | 2 | 110 | 2 | 110 | | | | | | | | |
| 71 | Oneonta, Cooperstown and Richfield Springs | 8 | 144 | 3 | 74 | 5 | 70 | | | | | | |
| 73 | Oswego Traction | 5 | 1,100 | | | 4 | 100 | 1 | 1,000 | | | | |
| 75 | Penn Yan, Keuka Park and Branchport | 3 | 56 | | | 2 | 24 | 1 | 32 | | | | |
| 77 | New York and Stamford | 1 | 25 | 1 | 25 | | | | | | | | |
| 80 | Rochester Railway | 4 | 207 | 4 | 207 | | | | | | | | |
| 82 | Rochester and Sodus Bay | 17 | 834 | | | | | 17 | 834 | | | | |
| 83 | Rochester, Charlotte and Manitou | 6 | 2,400 | | | | | 6 | 2,400 | | | | |
| 87 | Southfield Beach Railroad | 1 | 157 | | | 1 | 157 | | | | | | |
| 88 | Syracuse Rapid Transit | 15 | 862 | 13 | 823 | 2 | 39 | | | | | | |
| 89 | Syracuse and Suburban | 6 | 786 | 4 | 186 | | | 2 | 600 | | | | |
| 90 | Syracuse, Lakeside and Baldwinsville | 6 | 1,819 | 3 | 319 | 1 | 30 | 2 | 1,470 | | | | |
| 91 | Utica and Mohawk Valley | 24 | 1,190 | 18 | 1,100 | 6 | 90 | | | | | | |
| 92 | Black River Traction | 6 | 780 | 3 | 80 | | | 3 | 700 | | | | |
| 93 | Elmira and Seneca Lake | 10 | 516 | 9 | 404 | | | 1 | 112 | | | | |
| 94 | Buffalo, Gardenville and Ebenezer | 1 | 160 | | | 1 | 160 | | | | | | |
| 95 | Hamburg Railway | 6 | 139 | 3 | 110 | | | 3 | 29 | | | | |
| | NORTH CAROLINA. | | | | | | | | | | | | |
| | Total for state | 9 | 433 | 1 | 100 | 8 | 333 | | | | | | |
| 1 | Asheville Electric | 1 | 18 | | | 1 | 18 | | | | | | |
| 2 | Asheville Street Railroad | 3 | 75 | | | 3 | 75 | | | | | | |
| 4 | Charlotte Railway, Light and Power | 1 | 60 | | | 1 | 60 | | | | | | |
| 7 | Fries Manufacturing and Power | 4 | 280 | 1 | 100 | 3 | 180 | | | | | | |
| | OHIO. | | | | | | | | | | | | |
| | Total for state | 394 | 42,650 | 200 | 17,894 | 43 | 1,278 | 130 | 22,818 | 20 | 630 | 1 | 30 |
| 2 | Pennsylvania and Ohio | 1 | 90 | 1 | 90 | | | | | | | | |
| 3 | Ohio Central Traction | 9 | 33 | 7 | 23 | 2 | 10 | | | | | | |
| 5 | Stark Electric | 4 | 392 | 2 | 142 | | | 2 | 250 | | | | |
| 6 | Canton-Akron | 2 | 550 | 1 | 50 | | | 1 | 500 | | | | |
| 10 | Mill Creek Valley | 1 | 80 | 1 | 80 | | | | | | | | |
| 11 | Cincinnati, Dayton and Toledo | 28 | 2,352 | 14 | 290 | 9 | 162 | 5 | 1,900 | | | | |
| 12 | Cincinnati, Lawrenceburg and Aurora | 5 | 1,220 | 4 | 500 | | | 1 | 720 | | | | |
| 13 | Cleveland Electric Railway | 5 | 915 | 3 | 135 | 1 | 300 | 1 | 480 | | | | |
| 15 | Cleveland, Elyria and Western | 4 | 380 | 3 | 350 | | | | | | | 1 | 30 |
| 16 | Eastern Ohio Traction | 7 | 330 | 2 | 150 | 3 | 120 | 2 | 60 | | | | |
| 17 | Cleveland, Painesville and Eastern | 3 | 2,700 | 2 | 2,400 | | | 1 | 300 | | | | |
| 18 | Northern Ohio Traction | 15 | 2,330 | 8 | 1,180 | 4 | 90 | 3 | 1,060 | | | | |
| 20 | Columbus, London and Springfield | 7 | 1,360 | 2 | 1,060 | | | 5 | 300 | | | | |
| 21 | Columbus, Buckeye Lake and Newark | 20 | 2,170 | 4 | 170 | | | 16 | 2,000 | | | | |
| 25 | Dayton and Western | 4 | 400 | 4 | 400 | | | | | | | | |
| 26 | Dayton and Northern | 26 | 422 | 17 | 344 | | | | | 9 | 78 | | |
| 27 | Dayton, Springfield and Urbana | 16 | 436 | 5 | 288 | | | 10 | 130 | 1 | 18 | | |
| 28 | Dayton and Troy | 17 | 2,740 | 10 | 2,000 | | | 5 | 640 | 2 | 100 | | |
| 29 | Dayton and Xenia | 6 | 1,500 | 3 | 500 | | | 3 | 1,000 | | | | |
| 30 | Peoples Gas and Electric | 1 | 50 | | | 1 | 50 | | | | | | |
| 33 | East Liverpool Railway | 6 | 1,180 | 3 | 830 | | | 2 | 300 | 1 | 50 | | |
| 36 | Western Ohio Railway | 31 | 6,043 | 22 | 1,069 | | | 3 | 4,650 | 6 | 324 | | |
| 37 | Lorain Street Railway | 2 | 18 | 1 | 10 | 1 | 8 | | | | | | |
| 38 | Mansfield Railway, Light and Power | 7 | 1,140 | 1 | 65 | | | 6 | 1,075 | | | | |
| 42 | Tuscarawas Traction | 3 | 225 | | | | | 3 | 225 | | | | |
| 43 | Ohio River Railway and Power | 3 | 400 | | | | | 3 | 400 | | | | |
| 47 | Springfield and Xenia | 6 | 388 | 4 | 338 | | | 2 | 50 | | | | |
| 49 | Steubenville Traction and Light | 10 | 445 | 1 | 45 | | | 9 | 400 | | | | |
| 51 | Tiffin, Fostoria and Eastern | 6 | 234 | 4 | 154 | 2 | 80 | | | | | | |
| 53 | Toledo, Bowling Green and Southern | 5 | 200 | 4 | 140 | | | | | 1 | 60 | | |
| 54 | Toledo, Fostoria and Findlay | 9 | 155 | 3 | 65 | 6 | 90 | | | | | | |
| 55 | Toledo and Western | 24 | 1,063 | 13 | 535 | | | 11 | 528 | | | | |
| 56 | Lake Shore | 55 | 6,081 | 27 | 1,796 | | | 28 | 4,285 | | | | |
| 57 | Toledo and Maumee Valley | 3 | 330 | 2 | 300 | | | 1 | 30 | | | | |
| 61 | Youngstown-Sharon Railway and Light | 36 | 2,763 | 22 | 2,395 | 14 | 368 | | | | | | |
| 62 | Mahoning Valley | 7 | 1,535 | | | | | 7 | 1,535 | | | | |
| | OREGON. | | | | | | | | | | | | |
| | Total for state | 9 | 21,564 | | | 2 | 324 | 7 | 21,240 | | | | |
| 1 | Astoria Electric | 1 | 5,500 | | | | | 1 | 5,500 | | | | |
| 2 | Portland Railway | 2 | 9,200 | | | | | 2 | 9,200 | | | | |
| 4 | Portland City and Oregon | 3 | 6,264 | | | 2 | 324 | 1 | 5,940 | | | | |
| 5 | Salem Light, Power and Traction | 3 | 600 | | | | | 3 | 600 | | | | |

SUPPLEMENTARY TABLE 1.—BRIDGES AND TUNNELS OWNED BY STREET RAILWAY COMPANIES—Continued.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | BRIDGES. | | | | | | | | TUNNELS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Iron and steel. | | Wooden. | | Wooden trestles or trestle bridges. | | Masonry. | | | |
| | | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. |
| | PENNSYLVANIA. | | | | | | | | | | | | |
| | Total for state | 352 | 34,564 | 146 | 17,483 | 100 | 3,481 | 53 | 11,272 | 44 | 1,693 | 9 | 635 |
| 1 | Lehigh Valley Traction | 8 | 1,500 | 8 | 1,500 | | | | | | | | |
| 2 | Philadelphia and Lehigh Valley | 18 | 1,045 | 10 | 506 | 5 | 151 | 2 | 388 | 1 | 50 | | |
| 3 | Allentown and Kutztown Traction | 20 | 715 | 9 | 303 | 10 | 252 | 1 | 160 | | | | |
| 4 | Altoona and Logan Valley | 12 | 575 | 12 | 575 | | | | | | | | |
| 9 | Columbia and Montour | 3 | 420 | | | 2 | 100 | 1 | 320 | | | | |
| 10 | Bradford Electric Street Railway | 3 | 100 | | | | | 3 | 100 | | | | |
| 12 | Carlisle and Mt. Holly | 5 | 140 | | | 1 | 70 | | | 4 | 70 | | |
| 13 | Cumberland Valley Traction | 4 | 70 | | | 3 | 60 | | | 1 | 10 | | |
| 14 | Chester Traction | 2 | 90 | 2 | 90 | | | | | | | | |
| 15 | Media, Middletown, Aston and Chester | 7 | 535 | 1 | 125 | 5 | 110 | 1 | 300 | | | | |
| 16 | Philadelphia and Chester Railway | 2 | 100 | 2 | 100 | | | | | | | | |
| 17 | Connellsville Suburban | 1 | 50 | | | 1 | 50 | | | | | | |
| 18 | Newtown Electric Street Railway | 3 | 300 | 2 | 200 | 1 | 100 | | | | | | |
| 19 | Doylestown and Easton | 1 | 60 | 1 | 60 | | | | | | | | |
| 20 | Doylestown and Willow Grove | 10 | 1,000 | | | | | | | 10 | 1,000 | | |
| 22 | Easton and Nazareth | 9 | 719 | 1 | 25 | 5 | 70 | 2 | 564 | 1 | 60 | | |
| 23 | Erie Electric Motor | 2 | 200 | | | 1 | 100 | 1 | 100 | | | | |
| 24 | Erie Traction | 8 | 170 | 2 | 90 | 6 | 80 | | | | | | |
| 25 | Erie Rapid Transit | 4 | 215 | 1 | 60 | | | 1 | 80 | | | 2 | 75 |
| 27 | Gettysburg Transit | 3 | 90 | 1 | 60 | | | | | 2 | 30 | | |
| 29 | Lehigh Traction | 10 | 241 | 2 | 58 | 2 | 47 | 6 | 136 | | | | |
| 30 | Harrisburg Traction | 9 | 170 | 2 | 100 | | | | | 7 | 70 | | |
| 31 | Harrisburg and Mechanicsburg | 2 | 150 | 2 | 150 | | | | | | | | |
| 32 | Cambria Incline Plane | 1 | 100 | 1 | 100 | | | | | | | | |
| 33 | Johnstown Passenger Railway | 10 | 775 | 10 | 775 | | | | | | | | |
| 34 | Kittanning and Ford City | 4 | 62 | 1 | 22 | | | 2 | 20 | 1 | 20 | | |
| 35 | Conestoga Traction | 8 | 2,360 | 1 | 550 | 6 | 710 | 1 | 1,100 | | | | |
| 36 | Lebanon Valley | 5 | 63 | | | 3 | 45 | | | 2 | 18 | | |
| 37 | Lewistown and Reedsville | 3 | 210 | 2 | 198 | 1 | 12 | | | | | | |
| 38 | Susquehanna Traction | 1 | 40 | 1 | 40 | | | | | | | | |
| 39 | Lykens and Williams Valley | 1 | 120 | | | | | 1 | 120 | | | | |
| 41 | Schuylkill Traction | 16 | 2,368 | 4 | 285 | 8 | 258 | 4 | 1,825 | | | | |
| 43 | Meadville Traction | 2 | 240 | 2 | 240 | | | | | | | | |
| 44 | Lewisburg, Milton and Watsontown | 4 | 90 | 1 | 25 | 3 | 65 | | | | | | |
| 48 | Schuylkill Valley Traction | 1 | 35 | 1 | 35 | | | | | | | | |
| 49 | Lansdale and Norristown | 1 | 100 | 1 | 100 | | | | | | | | |
| 50 | Peoples Street Railway | 3 | 90 | 3 | 90 | | | | | | | | |
| 51 | Citizens Traction | 3 | 755 | 2 | 515 | | | 1 | 240 | | | | |
| 56 | Philadelphia and West Chester Traction | 4 | 60 | 4 | 60 | | | | | | | | |
| 58 | Fairmount Park Transportation | 15 | 2,922 | 6 | 2,322 | | | | | 3 | 100 | 6 | 500 |
| 59 | Delaware County and Philadelphia | 3 | 440 | 3 | 440 | | | | | | | | |
| 60 | Montgomery and Chester | 2 | 350 | 1 | 50 | | | 1 | 300 | | | | |
| 61 | Pittsburg Railways | 6 | 2,775 | 3 | 1,255 | | | 3 | 1,520 | | | | |
| 67 | Pittsburg, McKeesport and Greensburg | 19 | 799 | 9 | 200 | 8 | 133 | 1 | 406 | | | 1 | 60 |
| 68 | Pittsburg, McKeesport and Connellsville | 16 | 2,770 | 4 | 970 | | | 12 | 1,800 | | | | |
| 70 | Ringing Rocks Electric | 1 | 75 | | | | | 1 | 75 | | | | |
| 71 | Pottsville Union Traction | 3 | 150 | | | 3 | 150 | | | | | | |
| 72 | Punxsutawney Street Railway | 3 | 95 | | | 3 | 95 | | | | | | |
| 73 | United Traction | 15 | 867 | 8 | 744 | 7 | 123 | | | | | | |
| 74 | Waverly, Sayre and Athens | 3 | 400 | 3 | 400 | | | | | | | | |
| 75 | Neversink Mountain Railroad | 3 | 288 | | | | | 3 | 288 | | | | |
| 77 | Scranton Railway | 5 | 3,080 | 2 | 2,300 | 1 | 60 | 2 | 700 | | | | |
| 78 | Shamokin and Mt. Carmel | 3 | 1,100 | 2 | 800 | 1 | 300 | | | | | | |
| 79 | Shamokin and Edgewood | 1 | 10 | | | 1 | 10 | | | | | | |
| 82 | Tamaqua and Lansford | 4 | 300 | 3 | 270 | 1 | 30 | | | | | | |
| 84 | Titusville Electric Traction | 2 | 330 | | | 1 | 30 | 1 | 300 | | | | |
| 85 | Warren Street Railway | 3 | 60 | | | 3 | 60 | | | | | | |
| 87 | West Chester Street Railway | 2 | 530 | 1 | 130 | | | 1 | 400 | | | | |
| 88 | Wilkesbarre and Wyoming Valley | 11 | 340 | 7 | 180 | | | | | 4 | 160 | | |
| 89 | Wilkesbarre, Dallas and Harveys Lake | 9 | 217 | | | 7 | 187 | | | 2 | 30 | | |
| 92 | Williamsport Passenger Railway | 1 | 265 | 1 | 265 | | | | | | | | |
| 96 | York and Dover Electric | 1 | 120 | 1 | 120 | | | | | | | | |
| 97 | York and Dallastown Electric | 7 | 155 | | | | | 1 | 80 | 6 | 75 | | |
| 98 | York Street Railway | 1 | 23 | | | 1 | 23 | | | | | | |
| | RHODE ISLAND. | | | | | | | | | | | | |
| | Total for state | 20 | 4,518 | 2 | 680 | 3 | 294 | 15 | 3,544 | | | | |
| 1 | Sea View Railroad | 7 | 1,280 | | | | | 7 | 1,280 | | | | |
| 2 | Pawtucket Street Railway | 1 | 460 | | | | | 1 | 460 | | | | |
| 4 | Rhode Island Suburban | 11 | 2,766 | 2 | 680 | 3 | 294 | 6 | 1,792 | | | | |
| 7 | Pawcatuck Valley Railway | 1 | 12 | | | | | 1 | 12 | | | | |
| | SOUTH CAROLINA. | | | | | | | | | | | | |
| | Total for state | 12 | 8,600 | 2 | 180 | 2 | 450 | 8 | 7,970 | | | | |
| 2 | Charleston Railway, Gas and Electric | 5 | 7,480 | 2 | 180 | | | 3 | 7,300 | | | | |
| 3 | Columbia Railway, Light and Power | 2 | 70 | | | | | 2 | 70 | | | | |
| 4 | Greenville Traction | 1 | 350 | | | 1 | 350 | | | | | | |
| 6 | Rock Hill Water, Light and Railway | 1 | 100 | | | 1 | 100 | | | | | | |
| 7 | Spartanburg Railway, Gas and Electric | 3 | 600 | | | | | 3 | 600 | | | | |
| | TENNESSEE. | | | | | | | | | | | | |
| | Total for state | 81 | 4,631 | 6 | 2,435 | 12 | 475 | 25 | 1,446 | 38 | 275 | | |
| 2 | Chattanooga Electric Railway | 7 | 205 | 1 | 65 | 1 | 125 | | | 5 | 15 | | |
| 3 | Rapid Transit of Chattanooga | 51 | 850 | 1 | 400 | | | 20 | 250 | 30 | 200 | | |
| 4 | Electric Railway of Clarksville | 1 | 6 | | | | | 1 | 6 | | | | |
| 6 | Knoxville Traction | 1 | 200 | | | | | 1 | 200 | | | | |
| 7 | Memphis Street Railway | 16 | 1,480 | 1 | 120 | 11 | 350 | 1 | 950 | 3 | 60 | | |
| 8 | Nashville Railway | 5 | 1,890 | 3 | 1,850 | | | 2 | 40 | | | | |

SUPPLEMENTARY TABLE 1.—BRIDGES AND TUNNELS OWNED BY STREET RAILWAY COMPANIES—Continued.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | BRIDGES. | | | | | | | | TUNNELS. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Iron and steel. | | Wooden. | | Wooden trestles or trestle bridges. | | Masonry. | | | |
| | | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. | Number. | Length, feet. |
| | TEXAS. | | | | | | | | | | | | |
| | Total for state | 64 | 6,113 | 3 | 380 | 9 | 1,078 | 50 | 4,565 | 2 | 90 | | |
| 2 | Bonham Electric Railway, Light and Power | 2 | 30 | | | | | 2 | 30 | | | | |
| 4 | Rapid Transit | 6 | 190 | | | 4 | 100 | 1 | 30 | 1 | 60 | | |
| 5 | Denison and Sherman | 11 | 550 | | | | | 11 | 550 | | | | |
| 6 | El Paso Electric Railway | 10 | 1,058 | | | 5 | 978 | 5 | 80 | | | | |
| 7 | Northern Texas Traction | 19 | 1,780 | 3 | 380 | | | 16 | 1,400 | | | | |
| 8 | Galveston Street Railway | 5 | 1,400 | | | | | 5 | 1,400 | | | | |
| 9 | Houston Electric | 1 | 200 | | | | | 1 | 200 | | | | |
| 12 | Paris Transit | 1 | 30 | | | | | | | 1 | 30 | | |
| 13 | San Antonio Traction | 8 | 800 | | | | | 8 | 800 | | | | |
| 15 | Citizens Railway | 1 | 75 | | | | | 1 | 75 | | | | |
| | UTAH. | | | | | | | | | | | | |
| | Total for state | 10 | 295 | 1 | 150 | 9 | 145 | | | | | | |
| 1 | Ogden Rapid Transit | 6 | 210 | 1 | 150 | 5 | 60 | | | | | | |
| 2 | Consolidated Railway and Power | 2 | 25 | | | 2 | 25 | | | | | | |
| 3 | Salt Lake and Utah Valley | 2 | 60 | | | 2 | 60 | | | | | | |
| | VERMONT. | | | | | | | | | | | | |
| | Total for state | 18 | 2,534 | 7 | 1,282 | 7 | 87 | 4 | 1,165 | | | | |
| 1 | Barre and Montpelier | 3 | 222 | 2 | 190 | 1 | 32 | | | | | | |
| 2 | Bellows Falls and Saxtons River | 3 | 265 | 2 | 256 | 1 | 9 | | | | | | |
| 6 | St. Albans Street Railway | 3 | 450 | | | | | 3 | 450 | | | | |
| 7 | Springfield Electric Railway | 3 | 836 | 3 | 836 | | | | | | | | |
| 8 | Mt. Mansfield Electric Railway | 6 | 761 | | | 5 | 46 | 1 | 715 | | | | |
| | VIRGINIA. | | | | | | | | | | | | |
| | Total for state | 81 | 32,549 | 15 | 4,826 | 9 | 2,796 | 55 | 24,918 | 2 | 9 | | |
| 1 | Charlottesville City and Suburban | 3 | 516 | | | 1 | 86 | 2 | 430 | | | | |
| 3 | Washington, Arlington and Falls Church | 3 | 43 | | | 2 | 38 | | | 1 | 5 | | |
| 5 | Citizens Railway, Light and Power | 1 | 1,640 | | | | | 1 | 1,640 | | | | |
| 6 | Newport News and Old Point Railway and Electric | 3 | 2,000 | | | | | 3 | 2,000 | | | | |
| 7 | Bay Shore Terminal | 3 | 3,761 | | | | | 3 | 3,761 | | | | |
| 8 | Norfolk and Atlantic Terminal | 10 | 4,981 | 2 | 226 | | | 8 | 4,755 | | | | |
| 9 | Berkley Street Railway | 6 | 6,600 | 1 | 1,300 | 1 | 1,500 | 4 | 3,800 | | | | |
| 10 | Norfolk Railway and Light | 4 | 1,810 | 1 | 110 | 1 | 1,000 | 2 | 700 | | | | |
| 12 | Richmond and Petersburg Electric | 19 | 2,984 | 4 | 560 | 1 | 42 | 14 | 2,382 | | | | |
| 13 | Old Dominion Railway | 5 | 270 | | | 2 | 70 | 3 | 200 | | | | |
| 14 | Norfolk, Portsmouth and Newport News | 1 | 500 | | | | | 1 | 500 | | | | |
| 18 | Virginia Passenger and Power | 8 | 3,283 | 4 | 2,510 | | | 4 | 773 | | | | |
| 19 | Roanoke Railway and Electric | 4 | 212 | 2 | 105 | | | 2 | 107 | | | | |
| 21 | Washington, Alexandria and Mt. Vernon | 11 | 3,949 | 1 | 15 | 1 | 60 | 8 | 3,870 | 1 | 4 | | |
| | WASHINGTON. | | | | | | | | | | | | |
| | Total for state | 52 | 39,954 | | | 9 | 1,966 | 43 | 37,988 | | | | |
| 1 | Everett Railway and Electric | 1 | 150 | | | | | 1 | 150 | | | | |
| 2 | Olympia Light and Power | 3 | 320 | | | | | 3 | 320 | | | | |
| 3 | Seattle Electric | 26 | 33,177 | | | 3 | 257 | 23 | 32,920 | | | | |
| 4 | Seattle and Renton | 3 | 625 | | | | | 3 | 625 | | | | |
| 5 | Washington Water Power | 1 | 25 | | | 1 | 25 | | | | | | |
| 7 | Tacoma Railway and Power | 11 | 3,673 | | | | | 11 | 3,673 | | | | |
| 8 | Northern Railway and Improvement | 7 | 1,984 | | | 5 | 1,684 | 2 | 300 | | | | |
| | WEST VIRGINIA. | | | | | | | | | | | | |
| | Total for state | 23 | 11,225 | 7 | 1,190 | 5 | 375 | 11 | 9,660 | | | | |
| 4 | Camden Interstate Railway | 8 | 3,540 | 2 | 600 | 2 | 300 | 4 | 2,640 | | | | |
| 5 | Parkersburg, Marietta and Interurban | 9 | 4,455 | 1 | 40 | 3 | 75 | 5 | 4,340 | | | | |
| 7 | Wheeling Traction | 2 | 2,700 | 1 | 100 | | | 1 | 2,600 | | | | |
| 8 | Wheeling and Elm Grove | 4 | 530 | 3 | 450 | | | 1 | 80 | | | | |
| | WISCONSIN. | | | | | | | | | | | | |
| | Total for state | 20 | 6,706 | 6 | 4,243 | 5 | 515 | 9 | 1,948 | | | | |
| 1 | Wisconsin Traction, Light, Heat and Power | 1 | 800 | 1 | 800 | | | | | | | | |
| 2 | Ashland Light, Power and Street Railway | 2 | 300 | | | 2 | 300 | | | | | | |
| 3 | Chippewa Valley Electric Railroad | 2 | 12 | | | | | 2 | 12 | | | | |
| 5 | Fox River Electric Railway and Power | 1 | 200 | | | | | 1 | 200 | | | | |
| 7 | La Crosse City Railway | 1 | 170 | | | | | 1 | 170 | | | | |
| 9 | Madison Traction | 1 | 75 | | | 1 | 75 | | | | | | |
| 10 | Manitowoc and Northern | 2 | 1,200 | 1 | 200 | | | 1 | 1,000 | | | | |
| 11 | Marinette Gas, Electric Light and Street Railway | 1 | 16 | | | | | 1 | 16 | | | | |
| 14 | Milwaukee Light, Heat and Traction | 6 | 3,383 | 4 | 3,243 | 2 | 140 | | | | | | |
| 15 | Winnebago Traction | 3 | 550 | | | | | 3 | 550 | | | | |
| | HAWAII. | | | | | | | | | | | | |
| | Total for territory | 9 | 298 | 1 | 90 | 5 | 184 | | | 3 | 24 | | |
| 2 | Honolulu Rapid Transit and Land | 8 | 238 | 1 | 90 | 4 | 124 | | | 3 | 24 | | |
| 3 | Pacific Heights Electric Railway | 1 | 60 | | | 1 | 60 | | | | | | |
| | PORTO RICO. | | | | | | | | | | | | |
| | Total | 2 | 518 | 2 | 518 | | | | | | | | |
| 2 | San Juan Light and Transit | 2 | 518 | 2 | 518 | | | | | | | | |

SUPPLEMENTARY TABLE 2.—FEEDER CONDUIT SYSTEM, LENGTH IN MILES.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | CONCRETE. | | TERRA COTTA AND VITRIFIED CLAY. | | IRON PIPE. | | WOODEN DUCT, ETC. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Street occupied. | Duct. | Street occupied. | Duct. | Street occupied. | Duct. | Street occupied. | Duct. | Street occupied. | Duct. |
| | UNITED STATES | 589.3 | 6,546.9 | 13.5 | 95.3 | 336.6 | 3,905.1 | 156.0 | 1,981.4 | 83.2 | 565.1 |
| | DISTRICT OF COLUMBIA. | | | | | | | | | | |
| | Total for district | 28.9 | 195.5 | | | 14.1 | 77.5 | 14.8 | 118.0 | | |
| 3 | Capital Traction | 9.7 | 74.1 | | | 3.5 | 23.0 | 6.2 | 51.1 | | |
| 4 | City and Suburban of Washington | 8.6 | 66.9 | | | | | 8.6 | 66.9 | | |
| 7 | Metropolitan Railroad | 10.6 | 54.5 | | | 10.6 | 54.5 | | | | |
| | GEORGIA. | | | | | | | | | | |
| | Total for state | 8.3 | 41.3 | | | 7.0 | 40.0 | 1.3 | 1.3 | | |
| 2 | Georgia Railway and Electric | 8.3 | 41.3 | | | 7.0 | 40.0 | 1.3 | 1.3 | | |
| | ILLINOIS. | | | | | | | | | | |
| | Total for state | 32.6 | 145.8 | 2.1 | 19.9 | 30.1 | 121.3 | .4 | 4.6 | | |
| 9 | Chicago City Railway | 6.6 | 68.8 | 2.1 | 19.9 | 4.1 | 44.3 | .4 | 4.6 | | |
| 10 | Chicago Union Traction | 26.0 | 77.0 | | | 26.0 | 77.0 | | | | |
| | MASSACHUSETTS. | | | | | | | | | | |
| | Total for state | 33.0 | 318.5 | | | 26.4 | 233.8 | 6.5 | 84.6 | .1 | .1 |
| 4 | Old Colony Street Railway | .5 | 3.3 | | | .5 | 3.3 | | | | |
| 6 | Boston Elevated Railway | 22.8 | 227.5 | | | 16.3 | 142.9 | 6.5 | 84.6 | | |
| 38 | Union Street Railway | 1.5 | 15.0 | | | 1.5 | 15.0 | | | | |
| 51 | Pittsfield Electric | .1 | .1 | | | | | | | .1 | .1 |
| 58 | Springfield Street Railway | 8.1 | 72.6 | | | 8.1 | 72.6 | | | | |
| | MICHIGAN. | | | | | | | | | | |
| | Total for state | .1 | .1 | .1 | .1 | | | | | | |
| 2 | Bay Cities Consolidated | .1 | .1 | .1 | .1 | | | | | | |
| | MINNESOTA. | | | | | | | | | | |
| | Total for state | 14.0 | 27.5 | | | .5 | 2.5 | 13.5 | 25.0 | | |
| 3 | Twin City Rapid Transit | 14.0 | 27.5 | | | .5 | 2.5 | 13.5 | 25.0 | | |
| | MISSOURI. | | | | | | | | | | |
| | Total for state | 1.3 | 18.8 | .8 | 18.3 | | | .5 | .5 | | |
| 9 | St. Louis Transit | 1.3 | 18.8 | .8 | 18.3 | | | .5 | .5 | | |
| | NEW JERSEY. | | | | | | | | | | |
| | Total for state | 3.7 | 76.0 | | | 3.6 | 75.4 | .1 | .6 | | |
| 8 | New Jersey and Hudson River Railway and Ferry | .2 | .6 | | | .2 | .6 | | | | |
| 10 | North Jersey Street Railway | 3.5 | 75.4 | | | 3.4 | 74.8 | .1 | .6 | | |
| | NEW YORK. | | | | | | | | | | |
| | Total for state | 145.8 | 3,317.1 | 10.5 | 57.0 | 96.2 | 2,294.2 | 32.2 | 943.4 | 6.9 | 22.5 |
| 10 | International Railway | 17.2 | 105.1 | 10.5 | 57.0 | 2.8 | 28.9 | | | 3.9 | 19.2 |
| 41 | Interurban | 95.0 | 2,778.9 | | | 60.0 | 1,836.2 | 32.0 | 939.4 | 3.0 | 3.3 |
| 49 | Kingsbridge Railway | 3.1 | 13.0 | | | 3.1 | 13.0 | | | | |
| 55 | Manhattan Railway (elevated) | 12.9 | 279.0 | | | 12.7 | 275.0 | .2 | 4.0 | | |
| 58 | Brooklyn Rapid Transit | 10.0 | 133.5 | | | 10.0 | 133.5 | | | | |
| 80 | Rochester Railway | 7.6 | 7 6 | | | 7.6 | 7.6 | | | | |
| | OHIO. | | | | | | | | | | |
| | Total for state | 6.0 | 46.5 | | | .5 | 9.5 | 5.5 | 37.0 | | |
| 52 | Toledo Railways and Light | 6.0 | 46.5 | | | .5 | 9.5 | 5.5 | 37.0 | | |
| | PENNSYLVANIA. | | | | | | | | | | |
| | Total for state | 204.8 | 1,685.8 | | | 47.4 | 376.9 | 81.2 | 766.4 | 76.2 | 542.5 |
| 53 | Union Traction | 200.8 | 1,681.8 | | | 47.4 | 376.9 | 81.2 | 766.4 | 72.2 | 538.5 |
| 58 | Fairmount Park Transportation | 4.0 | 4.0 | | | | | | | 4.0 | 4.0 |
| | WISCONSIN. | | | | | | | | | | |
| | Total for state | 110.8 | 674.0 | | | 110.8 | 674.0 | | | | |
| 13 | Milwaukee Electric Railway and Light | 108.0 | 636.0 | | | 108.0 | 636.0 | | | | |
| 14 | Milwaukee Light, Heat and Traction | 2.8 | 38.0 | | | 2.8 | 38.0 | | | | |

SUPPLEMENTARY TABLE 3.—WATER WHEELS AND GAS ENGINES.

| Number. | STATE AND NAME OF COMPANY. | WATER WHEELS. | | | | | | | | GAS ENGINES. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and under 2,000 H. P. | | | |
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | UNITED STATES | 159 | 49,153 | 129 | 22,453 | 12 | 6,850 | 18 | 19,850 | 15 | 1,925 |
| | CALIFORNIA. | | | | | | | | | | |
| | Total for state | 8 | 6,495 | 3 | 245 | | | 5 | 6,250 | 3 | 175 |
| 7 | Los Angeles and Pasadena | 1 | 45 | 1 | 45 | | | | | | |
| 15 | Ontario and San Antonio Heights | 2 | 200 | 2 | 200 | | | | | | |
| 16 | Pasadena and Mt. Lowe | | | | | | | | | 2 | 100 |
| 22 | Sacramento Electric, Gas and Railway | 5 | 6,250 | | | | | 5 | 6,250 | | |
| 30 | San Jose and Santa Clara | | | | | | | | | 1 | 75 |
| | COLORADO. | | | | | | | | | | |
| | Total for state | 1 | 250 | 1 | 250 | | | | | | |
| 2 | Colorado Springs and Cripple Creek | 1 | 250 | 1 | 250 | | | | | | |
| | CONNECTICUT. | | | | | | | | | | |
| | Total for state | 3 | 646 | 3 | 646 | | | | | | |
| 19 | Peoples Tramway | 3 | 646 | 3 | 646 | | | | | | |
| | FLORIDA. | | | | | | | | | | |
| | Total for state | 8 | 1,400 | 8 | 1,400 | | | | | | |
| 6 | Tampa Electric | 8 | 1,400 | 8 | 1,400 | | | | | | |
| | GEORGIA. | | | | | | | | | | |
| | Total for state | 17 | 5,470 | 13 | 3,070 | 4 | 2,400 | | | | |
| 1 | Athens Electric Railway | 4 | 1,050 | 4 | 1,050 | | | | | | |
| 3 | Augusta Railway and Electric | 7 | 3,220 | 3 | 820 | 4 | 2,400 | | | | |
| 4 | Columbus Railroad | 6 | 1,200 | 6 | 1,200 | | | | | | |
| | IDAHO. | | | | | | | | | | |
| | Total for state | 1 | 60 | 1 | 60 | | | | | | |
| 1 | Boise Rapid Transit | 1 | 60 | 1 | 60 | | | | | | |
| | ILLINOIS. | | | | | | | | | | |
| | Total for state | 2 | 550 | 2 | 550 | | | | | 5 | 400 |
| 10 | Chicago Union Traction | | | | | | | | | 5 | 400 |
| 42 | Ottawa Railway, Light and Power | 2 | 550 | 2 | 550 | | | | | | |
| | MAINE. | | | | | | | | | | |
| | Total for state | 23 | 3,325 | 23 | 3,325 | | | | | | |
| 2 | Public Works | 15 | 2,000 | 15 | 2,000 | | | | | | |
| 16 | Sanford and Cape Porpoise | 1 | 75 | 1 | 75 | | | | | | |
| 19 | Waterville and Fairfield Railway and Light | 7 | 1,250 | 7 | 1,250 | | | | | | |
| | MASSACHUSETTS. | | | | | | | | | | |
| | Total for state | 13 | 1,732 | 13 | 1,732 | | | | | | |
| 21 | Greenfield and Turners Falls | 4 | 440 | 4 | 440 | | | | | | |
| 55 | Shelburne Falls and Colerain | 1 | 250 | 1 | 250 | | | | | | |
| 59 | Springfield and Eastern | 2 | 450 | 2 | 450 | | | | | | |
| 72 | Worcester Consolidated | 6 | 592 | 6 | 592 | | | | | | |
| | MINNESOTA. | | | | | | | | | | |
| | Total for state | 12 | 10,280 | 2 | 280 | | | 10 | 10,000 | | |
| 3 | Twin City Rapid Transit | 12 | 10,280 | 2 | 280 | | | 10 | 10,000 | | |
| | MONTANA. | | | | | | | | | | |
| | Total for state | 1 | 250 | 1 | 250 | | | | | | |
| 1 | Anaconda Copper Mining | 1 | 250 | 1 | 250 | | | | | | |
| | NEW YORK. | | | | | | | | | | |
| | Total for state | 21 | 8,645 | 17 | 4,395 | 1 | 650 | 3 | 3,600 | 2 | 100 |
| 1 | Albany and Hudson Railway and Power | 8 | 5,300 | 5 | 1,700 | | | 3 | 3,600 | | |
| 3 | Hudson Valley Railway | 4 | 1,300 | 4 | 1,300 | | | | | | |
| 14 | Ontario Light and Traction | 2 | 275 | 2 | 275 | | | | | | |
| 31 | Huntington Railroad | | | | | | | | | 2 | 100 |
| 32 | Ithaca Street Railway | 2 | 800 | 2 | 800 | | | | | | |
| 67 | Ogdensburg Street Railway | 4 | 320 | 4 | 320 | | | | | | |
| 89 | Syracuse and Suburban | 1 | 650 | | | 1 | 650 | | | | |

SUPPLEMENTARY TABLE 3.—WATER WHEELS AND GAS ENGINES—Continued.

| Number. | STATE AND NAME OF COMPANY. | WATER WHEELS. | | | | | | | | GAS ENGINES. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total. | | 500 H. P. or under. | | Over 500 H. P. and under 1,000 H. P. | | 1,000 H. P. and under 2,000 H. P. | | | |
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | NORTH CAROLINA. | | | | | | | | | | |
| | Total for state | 22 | 2,950 | 22 | 2,950 | | | | | | |
| 1 | Asheville Electric | 6 | 950 | 6 | 950 | | | | | | |
| 7 | Fries Manufacturing and Power | 16 | 2,000 | 16 | 2,000 | | | | | | |
| | OHIO. | | | | | | | | | | |
| | Total for state | 1 | 600 | | | 1 | 600 | | | 2 | 250 |
| 34 | Lancaster Traction | | | | | | | | | 2 | 250 |
| 57 | Toledo and Maumee Valley | 1 | 600 | | | 1 | 600 | | | | |
| | PENNSYLVANIA. | | | | | | | | | | |
| | Total for state | 2 | 200 | 2 | 200 | | | | | 3 | 1,000 |
| 42 | Mauch Chunk, Lehighton and Slatington | 2 | 200 | 2 | 200 | | | | | | |
| 51 | Citizens Traction | | | | | | | | | 1 | 400 |
| 85 | Warren Street Railway | | | | | | | | | 2 | 600 |
| | VERMONT. | | | | | | | | | | |
| | Total for state | 2 | 140 | 2 | 140 | | | | | | |
| 3 | Brattleboro Street Railway | 2 | 140 | 2 | 140 | | | | | | |
| | VIRGINIA. | | | | | | | | | | |
| | Total for state | 5 | 950 | 5 | 950 | | | | | | |
| 4 | Lynchburg Traction and Light | 2 | 350 | 2 | 350 | | | | | | |
| 15 | Radford Water Power | 3 | 600 | 3 | 600 | | | | | | |
| | WASHINGTON. | | | | | | | | | | |
| | Total for state | 5 | 1,325 | 5 | 1,325 | | | | | | |
| 2 | Olympia Light and Power | 5 | 1,325 | 5 | 1,325 | | | | | | |
| | WISCONSIN. | | | | | | | | | | |
| | Total for state | 12 | 3,885 | 6 | 685 | 6 | 3,200 | | | | |
| 1 | Wisconsin Traction, Light, Heat and Power | 6 | 3,200 | | | 6 | 3,200 | | | | |
| 12 | Merrill Railway and Lighting | 5 | 475 | 5 | 475 | | | | | | |
| 17 | Waupaca Electric Light and Railway | 1 | 210 | 1 | 210 | | | | | | |

SUPPLEMENTARY TABLE 4.—ALTERNATING-CURRENT DYNAMOS.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | 500 H. P. OR UNDER. | | OVER 500 H. P. AND UNDER 1,000 H. P. | | 1,000 H. P. AND UNDER 2,000 H. P. | | 2,000 H. P. AND OVER. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | UNITED STATES | 441 | 231,924 | 329 | 61,935 | 54 | 36,418 | 36 | 39,696 | 22 | 93,875 |
| | ALABAMA. | | | | | | | | | | |
| | Total for state | 11 | 1,737 | 11 | 1,737 | | | | | | |
| 2 | Birmingham Railway, Light and Power | 4 | 712 | 4 | 712 | | | | | | |
| 4 | Alabama City, Gadsden and Attalla | 1 | 75 | 1 | 75 | | | | | | |
| 5 | Huntsville Railway, Light and Power | 2 | 140 | 2 | 140 | | | | | | |
| 6 | Mobile Light and Railroad | 4 | 810 | 4 | 810 | | | | | | |
| | ARKANSAS. | | | | | | | | | | |
| | Total for state | 3 | 466 | 3 | 466 | | | | | | |
| 6 | Citizens Light and Transit | 3 | 466 | 3 | 466 | | | | | | |
| | CALIFORNIA. | | | | | | | | | | |
| | Total for state | 6 | 5,090 | 1 | 90 | | | 5 | 5,000 | | |
| 15 | Ontario and San Antonio Heights | 1 | 90 | 1 | 90 | | | | | | |
| 22 | Sacramento Electric, Gas and Railway | 5 | 5,000 | | | | | 5 | 5,000 | | |
| | COLORADO. | | | | | | | | | | |
| | Total for state | 6 | 1,691 | 5 | 1,024 | 1 | 667 | | | | |
| 1 | Boulder Railway and Utility | 2 | 185 | 2 | 185 | | | | | | |
| 2 | Colorado Springs and Cripple Creek | 1 | 306 | 1 | 306 | | | | | | |
| 8 | Pueblo Traction and Lighting | 3 | 1,200 | 2 | 533 | 1 | 667 | | | | |

SUPPLEMENTARY TABLE 4.—ALTERNATING-CURRENT DYNAMOS—Continued.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | 500 H. P. OR UNDER. | | OVER 500 H. P. AND UNDER 1,000 H. P. | | 1,000 H. P. AND UNDER 2,000 H. P. | | 2,000 H. P. AND OVER. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | CONNECTICUT. | | | | | | | | | | |
| | Total for state | 16 | 3,160 | 15 | 2,620 | 1 | 540 | | | | |
| 1 | Branford Lighting and Water | 2 | 300 | 2 | 300 | | | | | | |
| 2 | Connecticut Railway and Lighting | 13 | 2,320 | 13 | 2,320 | | | | | | |
| 19 | Peoples Tramway | 1 | 540 | | | 1 | 540 | | | | |
| | FLORIDA. | | | | | | | | | | |
| | Total for state | 11 | 2,313 | 11 | 2,313 | | | | | | |
| 2 | Jacksonville Electric | 2 | 400 | 2 | 400 | | | | | | |
| 3 | Key West Electric | 5 | 413 | 5 | 413 | | | | | | |
| 6 | Tampa Electric | 4 | 1,500 | 4 | 1,500 | | | | | | |
| | GEORGIA. | | | | | | | | | | |
| | Total for state | 20 | 7,643 | 15 | 2,963 | 3 | 2,000 | 2 | 2,680 | | |
| 1 | Athens Electric Railway | 1 | 335 | 1 | 335 | | | | | | |
| 2 | Georgia Railway and Electric | 3 | 3,480 | | | 1 | 800 | 2 | 2,680 | | |
| 3 | Augusta Railway and Electric | 2 | 1,200 | | | 2 | 1,200 | | | | |
| 4 | Columbus Railroad | 7 | 1,055 | 7 | 1,055 | | | | | | |
| 6 | Macon Railway and Light | 3 | 560 | 3 | 560 | | | | | | |
| 7 | City Electric Railway | 2 | 213 | 2 | 213 | | | | | | |
| 8 | Savannah Electric | 2 | 800 | 2 | 800 | | | | | | |
| | ILLINOIS. | | | | | | | | | | |
| | Total for state | 11 | 2,750 | 11 | 2,750 | | | | | | |
| 6 | Egypt Electric | 2 | 150 | 2 | 150 | | | | | | |
| 12 | Calumet Electric Street Railway | 1 | 150 | 1 | 150 | | | | | | |
| 21 | Chicago and Milwaukee | 2 | 750 | 2 | 750 | | | | | | |
| 25 | Danville Railway and Light | 3 | 1,100 | 3 | 1,100 | | | | | | |
| 42 | Ottawa Railway, Light and Power | 2 | 400 | 2 | 400 | | | | | | |
| 45 | Peoria and Pekin Terminal | 1 | 200 | 1 | 200 | | | | | | |
| | INDIANA. | | | | | | | | | | |
| | Total for state | 13 | 8,955 | 8 | 1,255 | 1 | 700 | 1 | 1,000 | 3 | 6,000 |
| 5 | Fort Wayne and Southwestern | 1 | 1,000 | | | | | 1 | 1,000 | | |
| 9 | Indianapolis, Shelbyville and Southeastern | 1 | 700 | | | 1 | 700 | | | | |
| 11 | Union Traction | 3 | 6,000 | | | | | | | 3 | 6,000 |
| 18 | Madison Light and Railway | 2 | 230 | 2 | 230 | | | | | | |
| 23 | Indiana Railway | 1 | 125 | 1 | 125 | | | | | | |
| 24 | Terre Haute Electric | 5 | 900 | 5 | 900 | | | | | | |
| | IOWA. | | | | | | | | | | |
| | Total for state | 20 | 3,379 | 20 | 3,379 | | | | | | |
| 1 | Boone Electric | 2 | 175 | 2 | 175 | | | | | | |
| 2 | Burlington Railway and Light | 2 | 300 | 2 | 300 | | | | | | |
| 10 | Union Electric | 3 | 666 | 3 | 666 | | | | | | |
| 11 | Fort Dodge Light and Power | 2 | 200 | 2 | 200 | | | | | | |
| 14 | Keokuk Railway and Power | 3 | 500 | 3 | 500 | | | | | | |
| 15 | Marshalltown Light, Power and Railway | 3 | 540 | 3 | 540 | | | | | | |
| 18 | Ottumwa Traction and Light | 2 | 600 | 2 | 600 | | | | | | |
| 21 | Tama and Toledo | 2 | 123 | 2 | 123 | | | | | | |
| 22 | Waterloo and Cedar Falls | 1 | 275 | 1 | 275 | | | | | | |
| | KANSAS. | | | | | | | | | | |
| | Total for state | 3 | 560 | 3 | 560 | | | | | | |
| 8 | Pittsburg Railroad | 1 | 160 | 1 | 160 | | | | | | |
| 11 | Wichita Railroad and Light | 2 | 400 | 2 | 400 | | | | | | |
| | KENTUCKY. | | | | | | | | | | |
| | Total for state | 10 | 1,473 | 10 | 1,473 | | | | | | |
| 5 | Lexington Railway | 5 | 773 | 5 | 773 | | | | | | |
| 12 | Paducah City Railway | 5 | 700 | 5 | 700 | | | | | | |
| | LOUISIANA. | | | | | | | | | | |
| | Total for state | 1 | 73 | 1 | 73 | | | | | | |
| 1 | Baton Rouge Electric and Gas | 1 | 73 | 1 | 73 | | | | | | |
| | MAINE. | | | | | | | | | | |
| | Total for state | 10 | 3,083 | 10 | 3,083 | | | | | | |
| 2 | Public Works | 2 | 1,000 | 2 | 1,000 | | | | | | |
| 11 | Lewiston, Brunswick and Bath | 3 | 1,000 | 3 | 1,000 | | | | | | |
| 15 | Rockland, Thomaston and Camden | 1 | 250 | 1 | 250 | | | | | | |
| 19 | Waterville and Fairfield Railway and Light | 4 | 833 | 4 | 833 | | | | | | |
| | MARYLAND. | | | | | | | | | | |
| | Total for state | 2 | 240 | 2 | 240 | | | | | | |
| 6 | Hagerstown Railway | 2 | 240 | 2 | 240 | | | | | | |
| | MASSACHUSETTS. | | | | | | | | | | |
| | Total for state | 11 | 2,914 | 9 | 1,714 | 2 | 1,200 | | | | |
| 4 | Old Colony Street Railway | 3 | 247 | 3 | 247 | | | | | | |
| 5 | Boston and Northern | 2 | 667 | 2 | 667 | | | | | | |
| 25 | Holyoke Street Railway | 1 | 100 | 1 | 100 | | | | | | |
| 35 | Milford and Uxbridge | 2 | 300 | 2 | 300 | | | | | | |
| 53 | Brockton and Plymouth | 1 | 400 | 1 | 400 | | | | | | |
| 74 | Worcester and Southbridge | 2 | 1,200 | | | 2 | 1,200 | | | | |

SUPPLEMENTARY TABLE 4.—ALTERNATING-CURRENT DYNAMOS—Continued.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | 500 H. P. OR UNDER. | | OVER 500 H. P. AND UNDER 1,000 H. P. | | 1,000 H. P. AND UNDER 2,000 H. P. | | 2,000 H. P. AND OVER. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | MICHIGAN. | | | | | | | | | | |
| | Total for state | 39 | 11,662 | 31 | 6,595 | 8 | 5,067 | | | | |
| 3 | Benton Harbor and St. Joseph | 3 | 400 | 3 | 400 | | | | | | |
| 4 | Detroit United Railway | 1 | 333 | 1 | 333 | | | | | | |
| 5 | Detroit and Port Huron Shore Line | 3 | 2,000 | | | 3 | 2,000 | | | | |
| 6 | Detroit, Ypsilanti, Ann Arbor and Jackson | 5 | 1,250 | 5 | 1,250 | | | | | | |
| 9 | Grand Rapids, Grand Haven and Muskegon | 5 | 1,675 | 5 | 1,675 | | | | | | |
| 10 | Grand Rapids, Holland and Lake Michigan | 2 | 1,333 | | | 2 | 1,333 | | | | |
| 11 | Houghton County Street Railway | 1 | 667 | | | 1 | 667 | | | | |
| 12 | Twin City General Electric | 5 | 320 | 5 | 320 | | | | | | |
| 13 | Negaunee and Ishpeming | 2 | 335 | 2 | 335 | | | | | | |
| 19 | Menominee Light, Railway and Power | 2 | 150 | 2 | 150 | | | | | | |
| 20 | Toledo and Monroe | 2 | 1,067 | | | 2 | 1,067 | | | | |
| 21 | Muskegon Traction and Lighting | 3 | 800 | 3 | 800 | | | | | | |
| 23 | Owosso and Corunna Electric | 2 | 126 | 2 | 126 | | | | | | |
| 24 | Saginaw Valley Traction | 3 | 1,206 | 3 | 1,206 | | | | | | |
| | MINNESOTA. | | | | | | | | | | |
| | Total for state | 9 | 8,100 | 1 | 100 | | | 8 | 8,000 | | |
| 3 | Twin City Rapid Transit | 8 | 8,000 | | | | | 8 | 8,000 | | |
| 5 | Winona Railway and Light | 1 | 100 | 1 | 100 | | | | | | |
| | MISSISSIPPI. | | | | | | | | | | |
| | Total for state | 9 | 1,556 | 9 | 1,556 | | | | | | |
| 2 | Jackson Railway, Light and Power | 3 | 573 | 3 | 573 | | | | | | |
| 3 | Meridian Light and Railway | 2 | 533 | 2 | 533 | | | | | | |
| 5 | Vicksburg Railroad, Power and Manufacturing | 4 | 450 | 4 | 450 | | | | | | |
| | MISSOURI. | | | | | | | | | | |
| | Total for state | 11 | 7,683 | 5 | 667 | 3 | 2,200 | 3 | 4,816 | | |
| 5 | Southwest Missouri Electric Railway | 1 | 900 | | | 1 | 900 | | | | |
| 7 | Missouri Water, Light and Traction | 1 | 167 | 1 | 167 | | | | | | |
| 8 | St. Joseph Railway, Light, Heat and Power | 3 | 1,500 | 1 | 200 | 2 | 1,300 | | | | |
| 9 | St. Louis Transit | 2 | 3,216 | | | | | 2 | 3,216 | | |
| 10 | St. Louis and Suburban | 1 | 1,600 | | | | | 1 | 1,600 | | |
| 14 | Railway and Electric of Sedalia | 3 | 300 | 3 | 300 | | | | | | |
| | NEBRASKA. | | | | | | | | | | |
| | Total for state | 2 | 250 | 2 | 250 | | | | | | |
| 1 | Lincoln Traction | 2 | 250 | 2 | 250 | | | | | | |
| | NEW HAMPSHIRE. | | | | | | | | | | |
| | Total for state | 2 | 900 | 1 | 200 | 1 | 700 | | | | |
| 8 | Exeter, Hampton and Amesbury | 2 | 900 | 1 | 200 | 1 | 700 | | | | |
| | NEW JERSEY. | | | | | | | | | | |
| | Total for state | 2 | 388 | 2 | 388 | | | | | | |
| 21 | Point Pleasant Traction, Electric Light and Power | 2 | 388 | 2 | 388 | | | | | | |
| | NEW YORK. | | | | | | | | | | |
| | Total for state | 46 | 88,693 | 28 | 5,818 | | | 3 | 3,000 | 15 | 79,875 |
| 1 | Albany and Hudson Railway and Power | 6 | 3,900 | 3 | 900 | | | 3 | 3,000 | | |
| 14 | Ontario Light and Traction | 1 | 135 | 1 | 135 | | | | | | |
| 17 | Cortland County Traction | 2 | 320 | 2 | 320 | | | | | | |
| 19 | Dunkirk and Fredonia | 2 | 120 | 2 | 120 | | | | | | |
| 21 | Elmira Water, Light and Railroad | 4 | 1,066 | 4 | 1,066 | | | | | | |
| 32 | Ithaca Street Railway | 2 | 400 | 2 | 400 | | | | | | |
| 36 | Lima-Honeoye Light and Railroad | 2 | 200 | 2 | 200 | | | | | | |
| 41 | Interurban | 11 | 53,075 | | | | | | | 11 | 53,075 |
| 55 | Manhattan Railway (elevated) | 4 | 26,800 | | | | | | | 4 | 26,800 |
| 74 | Peekskill Lighting and Railroad | 3 | 500 | 3 | 500 | | | | | | |
| 78 | Port Jervis Electric, Gas and Railroad | 2 | 193 | 2 | 193 | | | | | | |
| 82 | Rochester and Sodus Bay | 2 | 800 | 2 | 800 | | | | | | |
| 85 | Schenectady Railway | 5 | 1,184 | 5 | 1,184 | | | | | | |
| | NORTH CAROLINA. | | | | | | | | | | |
| | Total for state | 11 | 4,036 | 9 | 2,036 | | | 2 | 2,000 | | |
| 1 | Asheville Electric | 2 | 530 | 2 | 530 | | | | | | |
| 4 | Charlotte Railway, Light and Power | 4 | 480 | 4 | 480 | | | | | | |
| 5 | Raleigh Electric | 1 | 426 | 1 | 426 | | | | | | |
| 7 | Fries Manufacturing and Power | 4 | 2,600 | 2 | 600 | | | 2 | 2,000 | | |
| | OHIO. | | | | | | | | | | |
| | Total for state | 50 | 23,314 | 28 | 6,160 | 17 | 11,654 | 5 | 5,500 | | |
| 4 | Consolidated | 2 | 380 | 2 | 380 | | | | | | |
| 5 | Stark Electric | 2 | 1,543 | | | 2 | 1,543 | | | | |
| 6 | Canton-Akron | 3 | 2,400 | | | 2 | 1,200 | 1 | 1,200 | | |
| 7 | Chillicothe Electric Railroad, Light and Power | 2 | 320 | 2 | 320 | | | | | | |
| 16 | Eastern Ohio Traction | 1 | 415 | 1 | 415 | | | | | | |
| 18 | Northern Ohio Traction | 3 | 786 | 2 | 120 | 1 | 666 | | | | |
| 20 | Columbus, London and Springfield | 2 | 1,600 | | | 2 | 1,600 | | | | |
| 21 | Columbus, Buckeye Lake and Newark | 2 | 2,300 | | | | | 2 | 2,300 | | |

SUPPLEMENTARY TABLE 4.—ALTERNATING-CURRENT DYNAMOS—Continued.

| Number. | STATE AND NAME OF COMPANY. | TOTAL. | | 500 H. P. OR UNDER. | | OVER 500 H. P. AND UNDER 1,000 H. P. | | 1,000 H. P. AND UNDER 2,000 H. P. | | 2,000 H. P. AND OVER. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | OHIO—Continued. | | | | | | | | | | |
| 26 | Dayton and Northern | 2 | 666 | 2 | 666 | | | | | | |
| 30 | Peoples Gas and Electric | 1 | 200 | 1 | 200 | | | | | | |
| 32 | United Electric | 4 | 198 | 4 | 198 | | | | | | |
| 36 | Western Ohio Railway | 4 | 3,120 | | | 2 | 1,120 | 2 | 2,000 | | |
| 38 | Mansfield Railway, Light and Power | 3 | 1,629 | 1 | 294 | 2 | 1,335 | | | | |
| 42 | Tuscarawas Traction | 1 | 120 | 1 | 120 | | | | | | |
| 44 | Portsmouth Street Railway | 2 | 300 | 2 | 300 | | | | | | |
| 47 | Springfield and Xenia | 2 | 800 | 2 | 800 | | | | | | |
| 52 | Toledo Railways and Light | 3 | 1,067 | 3 | 1,067 | | | | | | |
| 53 | Toledo, Bowling Green and Southern | 3 | 720 | 3 | 720 | | | | | | |
| 55 | Toledo and Western | 3 | 1,920 | 1 | 480 | 2 | 1,440 | | | | |
| 56 | Lake Shore | 4 | 2,750 | | | 4 | 2,750 | | | | |
| 58 | Wellston and Jackson Belt | 1 | 80 | 1 | 80 | | | | | | |
| | OREGON. | | | | | | | | | | |
| | Total for state | 4 | 1,000 | 3 | 400 | 1 | 600 | | | | |
| 8 | City and Suburban | 1 | 600 | | | 1 | 600 | | | | |
| 5 | Salem Light, Power and Traction | 3 | 400 | 3 | 400 | | | | | | |
| | PENNSYLVANIA. | | | | | | | | | | |
| | Total for state | 13 | 6,443 | 8 | 1,443 | | | 5 | 5,000 | | |
| 9 | Columbia and Montour | 2 | 533 | 2 | 533 | | | | | | |
| 18 | Newtown Electric Street Railway | 2 | 250 | 2 | 250 | | | | | | |
| 35 | Conestoga Traction | 1 | 400 | 1 | 400 | | | | | | |
| 61 | Pittsburg Railways | 5 | 5,000 | | | | | 5 | 5,000 | | |
| 86 | Washington Electric Railway | 3 | 260 | 3 | 260 | | | | | | |
| | SOUTH CAROLINA. | | | | | | | | | | |
| | Total for state | 8 | 1,590 | 8 | 1,590 | | | | | | |
| 2 | Charleston Railway, Gas and Electric | 6 | 1,270 | 6 | 1,270 | | | | | | |
| 7 | Spartanburg Railway, Gas and Electric | 2 | 320 | 2 | 320 | | | | | | |
| | TENNESSEE. | | | | | | | | | | |
| | Total for state | 3 | 1,183 | 1 | 117 | 2 | 1,066 | | | | |
| 5 | Jackson and Suburban | 1 | 117 | 1 | 117 | | | | | | |
| 6 | Knoxville Traction | 2 | 1,066 | | | 2 | 1,066 | | | | |
| | TEXAS. | | | | | | | | | | |
| | Total for state | 4 | 2,173 | 2 | 433 | 2 | 1,740 | | | | |
| 7 | Northern Texas Traction | 2 | 1,740 | | | 2 | 1,740 | | | | |
| 8 | Galveston Street Railway | 2 | 433 | 2 | 433 | | | | | | |
| | VIRGINIA. | | | | | | | | | | |
| | Total for state | 17 | 3,555 | 16 | 2,721 | 1 | 834 | | | | |
| 4 | Lynchburg Traction and Light | 5 | 775 | 5 | 775 | | | | | | |
| 5 | Citizens Railway, Light and Power | 1 | 50 | 1 | 50 | | | | | | |
| 6 | Newport News and Old Point Railway and Electric | 5 | 1,900 | 4 | 1,066 | 1 | 834 | | | | |
| 10 | Norfolk Railway and Light | 3 | 500 | 3 | 500 | | | | | | |
| 15 | Radford Water Power | 2 | 280 | 2 | 280 | | | | | | |
| 19 | Roanoke Railway and Electric | 1 | 50 | 1 | 50 | | | | | | |
| | WASHINGTON. | | | | | | | | | | |
| | Total for state | 13 | 5,252 | 9 | 1,168 | 2 | 1,384 | 2 | 2,700 | | |
| 1 | Everett Railway and Electric | 1 | 634 | | | 1 | 634 | | | | |
| 2 | Olympia Light and Power | 3 | 348 | 3 | 348 | | | | | | |
| 3 | Seattle Electric | 5 | 660 | 5 | 660 | | | | | | |
| 7 | Tacoma Railway and Power | 3 | 3,450 | | | 1 | 750 | 2 | 2,700 | | |
| 8 | Northern Railway and Improvement | 1 | 160 | 1 | 160 | | | | | | |
| | WEST VIRGINIA. | | | | | | | | | | |
| | Total for state | 14 | 3,923 | 11 | 2,123 | 3 | 1,800 | | | | |
| 3 | Fairmont and Clarksburg | 4 | 653 | 4 | 653 | | | | | | |
| 4 | Camden Interstate Railway | 3 | 1,800 | | | 3 | 1,800 | | | | |
| 5 | Parkersburg, Marietta and Interurban | 5 | 1,260 | 5 | 1,260 | | | | | | |
| 8 | Wheeling and Elm Grove | 2 | 210 | 2 | 210 | | | | | | |
| | WISCONSIN. | | | | | | | | | | |
| | Total for state | 30 | 14,696 | 20 | 2,430 | 6 | 4,266 | | | 4 | 8,000 |
| 1 | Wisconsin Traction, Light, Heat and Power | 2 | 1,600 | | | 2 | 1,600 | | | | |
| 2 | Ashland Light, Power and Street Railway | 3 | 320 | 3 | 320 | | | | | | |
| 4 | Fond du Lac Street Railway and Light | 3 | 350 | 3 | 350 | | | | | | |
| 11 | Marinette Gas, Electric Light and Street Railway | 3 | 350 | 3 | 350 | | | | | | |
| 13 | Milwaukee Electric Railway and Light | 10 | 10,720 | 3 | 720 | 3 | 2,000 | | | 4 | 8,000 |
| 14 | Milwaukee Light, Heat and Traction | 2 | 706 | 1 | 40 | 1 | 666 | | | | |
| 15 | Winnebago Traction | 1 | 300 | 1 | 300 | | | | | | |
| 16 | Sheboygan Light, Power and Railway | 5 | 250 | 5 | 250 | | | | | | |
| 17 | Waupaca Electric Light and Railway | 1 | 100 | 1 | 100 | | | | | | |
| | HAWAII. | | | | | | | | | | |
| | Total | 1 | 75 | 1 | 75 | | | | | | |
| 3 | Pacific Heights Electric Railway | 1 | 75 | 1 | 75 | | | | | | |
| | PORTO RICO. | | | | | | | | | | |
| | Total | 2 | 600 | 2 | 600 | | | | | | |
| 2 | San Juan Light and Transit | 2 | 600 | 2 | 600 | | | | | | |

## SUPPLEMENTARY TABLE 5.—AUXILIARY ELECTRIC EQUIPMENT.

| Number. | STATE AND NAME OF COMPANY. | TRANSFORMERS. | | STORAGE-BATTERY CELLS. | | BOOSTERS. | | AUXILIARY GENERATORS. | | ROTARIES. | | ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Direct current. | | Alternating current. | |
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | UNITED STATES. | [1]731 | 63,486 | [2]16,471 | 19,744 | [3]104 | 18,819 | [4]71 | 5,044 | 83 | 27,861 | 432 | 10,053 | 86 | 5,101 |
| | ALABAMA. | | | | | | | | | | | | | | |
| | Total for state | 3 | 187 | | | | | | | | | 3 | 240 | | |
| 1 | Anniston Electric and Gas | | | | | | | | | | | 3 | 240 | | |
| 6 | Mobile Light and Railroad | 3 | 187 | | | | | | | | | | | | |
| | ARKANSAS. | | | | | | | | | | | | | | |
| | Total for state | 3 | 180 | | | | | | | | | | | | |
| 6 | Citizens Light and Transit | 3 | 180 | | | | | | | | | | | | |
| | CALIFORNIA. | | | | | | | | | | | | | | |
| | Total for state | 12 | 4,240 | 1,012 | 561 | 4 | 170 | 3 | 55 | | | 6 | 320 | 5 | 1,105 |
| 4 | Nevada County Traction | | | 270 | 15 | | | | | | | | | | |
| 7 | Los Angeles and Pasadena | | | | | 1 | 75 | | | | | 2 | 70 | | |
| 8 | Los Angeles Pacific Railway | | | | | | | 1 | 25 | | | | | | |
| 15 | Ontario and San Antonio Heights | | | 250 | 180 | 1 | 15 | | | | | | | | |
| 20 | Redlands Street Railway | | | | | | | | | | | 1 | 20 | 1 | 5 |
| 22 | Sacramento Electric, Gas and Railway | 12 | 4,240 | | | 1 | 60 | | | | | | | 3 | 900 |
| 23 | San Bernardino Valley | | | | | | | | | | | 1 | 200 | 1 | 200 |
| 24 | San Diego Electric Railway | | | 225 | 190 | | | | | | | | | | |
| 28 | United Railroads of San Francisco | | | | | | | 2 | 30 | | | | | | |
| 30 | San Jose and Santa Clara | | | 267 | 176 | 1 | 20 | | | | | 2 | 30 | | |
| | COLORADO. | | | | | | | | | | | | | | |
| | Total for state | 8 | 614 | 264 | 235 | 1 | 87 | 3 | 49 | 2 | 533 | 2 | 45 | | |
| 2 | Colorado Springs and Cripple Creek | 6 | 600 | | | | | | | 2 | 533 | | | | |
| 3 | Colorado Springs Rapid Transit | | | | | | | | | | | 2 | 45 | | |
| 8 | Pueblo Traction and Lighting | 2 | 14 | 264 | 235 | 1 | 87 | 3 | 49 | | | | | | |
| | CONNECTICUT. | | | | | | | | | | | | | | |
| | Total for state | 6 | 800 | 1,270 | 1,072 | 4 | 620 | | | 1 | 200 | | | | |
| 2 | Connecticut Railway and Lighting | | | 264 | [5] | 2 | 320 | | | | | | | | |
| 9 | Hartford, Manchester and Rockville | | | 264 | 200 | | | | | | | | | | |
| 10 | New York, New Haven and Hartford (Berlin system) | | | 472 | 472 | | | | | | | | | | |
| 15 | Fairhaven and Westville | | | | | 1 | 250 | | | | | | | | |
| 17 | Montville Street Railway | | | 270 | 400 | 1 | 50 | | | | | | | | |
| 19 | Peoples Tramway | 6 | 800 | | | | | | | 1 | 200 | | | | |
| | DELAWARE. | | | | | | | | | | | | | | |
| | Total for state | | | | | | | | | | | 6 | 996 | 1 | 63 |
| 1 | Wilmington and New Castle | | | | | | | | | | | 1 | 63 | 1 | 63 |
| 2 | Peoples Railway | | | | | | | | | | | 3 | 400 | | |
| 3 | Wilmington City | | | | | | | | | | | 2 | 533 | | |
| | DISTRICT OF COLUMBIA. | | | | | | | | | | | | | | |
| | Total for district | | | 264 | 150 | 3 | 400 | 4 | 182 | | | | | | |
| 3 | Capital Traction | | | | | 3 | 400 | 1 | 67 | | | | | | |
| 5 | Columbia Railway | | | 264 | 150 | | | 1 | 25 | | | | | | |
| 7 | Metropolitan Railroad | | | | | | | 2 | 90 | | | | | | |
| | GEORGIA. | | | | | | | | | | | | | | |
| | Total for state | 8 | 1,967 | | | | | | | 1 | 500 | 4 | 95 | 2 | 80 |
| 2 | Georgia Railway and Electric | 2 | 500 | | | | | | | 1 | 500 | 4 | 95 | 2 | 80 |
| 3 | Augusta Railway and Electric | 4 | 1,200 | | | | | | | | | | | | |
| 4 | Columbus Railroad | 2 | 267 | | | | | | | | | | | | |
| | ILLINOIS. | | | | | | | | | | | | | | |
| | Total for state | 4 | 154 | 1,033 | 1,648 | 6 | 1,303 | | | 1 | 35 | 22 | 707 | 2 | 8 |
| 2 | Elgin, Aurora and Southern | | | | | 1 | 200 | | | | | | | | |
| 9 | Chicago City Railway | | | 250 | 1,000 | 1 | 533 | | | | | | | | |
| 10 | Chicago Union Traction | | | | | | | | | | | 10 | 275 | | |
| 11 | Chicago Consolidated Traction | | | | | 1 | 275 | | | | | 3 | 262 | | |
| 12 | Calumet Electric Street Railway | 3 | 150 | | | | | | | | | | | | |
| 13 | Chicago Electric Traction | | | | | 1 | 175 | | | | | | | | |
| 18 | South Side Elevated Railroad | | | 520 | 433 | | | | | | | | | | |
| 20 | South Chicago City Railway | | | | | 2 | 120 | | | | | 5 | 150 | | |
| 21 | Chicago and Milwaukee | | | 263 | 215 | | | | | | | 2 | 5 | | |
| 22 | Lake Street Elevated Railroad | | | | | | | | | | | | | 2 | 8 |
| 40 | Coal Belt Electric Railway | | | | | | | | | 1 | 35 | | | | |
| 44 | Central Railway | | | | | | | | | | | 2 | 15 | | |
| 45 | Peoria and Pekin Terminal | 1 | 4 | | | | | | | | | | | | |

[1] Exclusive of 9 for which horsepower was not reported.
[2] Exclusive of 1,966 for which horsepower was not reported.
[3] Exclusive of 8 for which horsepower was not reported.
[4] Exclusive of 1 for which horsepower was not reported.
[5] Not reported.

SUPPLEMENTARY TABLE 5.—AUXILIARY ELECTRIC EQUIPMENT—Continued.

| Number. | STATE AND NAME OF COMPANY. | TRANSFORMERS. | | STORAGE-BATTERY CELLS. | | BOOSTERS. | | AUXILIARY GENERATORS. | | ROTARIES. | | ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Direct current. | | Alternating current. | |
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | INDIANA. | | | | | | | | | | | | | | |
| | Total for state | 20 | 5,200 | 264 | 256 | 1 | 320 | 2 | 150 | 6 | 1,688 | 6 | 158 | | |
| 3 | Evansville Electric Railway | | | | | | | | | | | 1 | 20 | | |
| 5 | Fort Wayne and Southwestern | 1 | 75 | | | | | | | 1 | 100 | | | | |
| 7 | Indianapolis Street Railway | | | | | 1 | 320 | | | | | 2 | 96 | | |
| 9 | Indianapolis, Shelbyville and Southeastern | 3 | (1) | | | | | | | 1 | 463 | | | | |
| 11 | Union Traction | 15 | 5,700 | 264 | 256 | | | 2 | 150 | 3 | 1,000 | | | | |
| 22 | Richmond Street and Interurban | 1 | 125 | | | | | | | 1 | 125 | | | | |
| 23 | Indiana Railway | | | | | | | | | | | 3 | 38 | | |
| | IOWA. | | | | | | | | | | | | | | |
| | Total for state | 12 | 1,057 | 215 | 100 | | | 5 | 63 | 1 | 450 | 1 | 15 | 2 | 6 |
| 3 | Cedar Rapids and Marion City | | | | | | | | | | | 1 | 15 | | |
| 8 | Des Moines City Railway | | | | | | | | | | | | | 2 | 6 |
| 9 | Interurban Railway | 3 | 450 | | | | | | | 1 | 450 | | | | |
| 10 | Union Electric | | | | | | | 3 | 50 | | | | | | |
| 15 | Marshalltown Light, Power and Railway | 1 | 5 | | | | | | | | | | | | |
| 17 | Citizens Railway and Light | | | | | | | 2 | 13 | | | | | | |
| 18 | Ottumwa Traction and Light | 3 | 300 | | | | | | | | | | | | |
| 21 | Tama and Toledo | 2 | 2 | | | | | | | | | | | | |
| 22 | Waterloo and Cedar Falls | 3 | 300 | 215 | 100 | | | | | | | | | | |
| | KANSAS. | | | | | | | | | | | | | | |
| | Total for state | 4 | 225 | | | | | | | | | | | | |
| 11 | Wichita Railroad and Light | 4 | 225 | | | | | | | | | | | | |
| | KENTUCKY. | | | | | | | | | | | | | | |
| | Total for state | | | | | | | | | | | 5 | 87 | | |
| 7 | Louisville Railway | | | | | | | | | | | 4 | 75 | | |
| 12 | Paducah City Railway | | | | | | | | | | | 1 | 12 | | |
| | LOUISIANA. | | | | | | | | | | | | | | |
| | Total for state | | | | | 1 | 117 | | | | | | | | |
| 5 | New Orleans Railways | | | | | 1 | 117 | | | | | | | | |
| | MAINE. | | | | | | | | | | | | | | |
| | Total for state | 406 | 2,500 | 524 | 500 | 5 | 514 | | | | | 2 | 21 | 1 | 1 |
| 2 | Public Works | | | | | 4 | 354 | | | | | | | 1 | 1 |
| 6 | Biddeford and Saco | | | 264 | 200 | | | | | | | | | | |
| 11 | Lewiston, Brunswick and Bath | 6 | 1,000 | | | | | | | | | 1 | 20 | | |
| 13 | Portland Railroad | | | | | 1 | 160 | | | | | | | | |
| 14 | Portsmouth, Kittery and York | | | | | | | | | | | 1 | 1 | | |
| 19 | Waterville and Fairfield Railway and Light | 400 | 1,500 | 260 | 300 | | | | | | | | | | |
| | MARYLAND. | | | | | | | | | | | | | | |
| | Total for state | | | 260 | 230 | 5 | 1,033 | | | | | | | | |
| 1 | United Railways | | | 260 | 230 | 5 | 1,033 | | | | | | | | |
| | MASSACHUSETTS. | | | | | | | | | | | | | | |
| | Total for state | 32 | 2,655 | 1,913 | 1,112 | 11 | 1,368 | 8 | 20 | 8 | 1,083 | 47 | 1,025 | | |
| 1 | Amherst and Sunderland | | | 216 | 180 | | | | | | | | | | |
| 3 | Lexington and Boston | | | 432 | 100 | | | | | | | | | | |
| 4 | Old Colony Street Railway | | | | | 2 | 400 | 2 | 8 | | | | | | |
| 5 | Boston and Northern | 15 | 640 | | | 2 | 153 | 1 | 12 | 4 | 400 | 5 | 9 | | |
| 6 | Boston Elevated Railway | | | | | | | | | 2 | 133 | 40 | 1,000 | | |
| 10 | Hoosac Valley | | | | | 1 | 75 | | | | | | | | |
| 14 | Norfolk Western Railway | | | | | | | | | | | 1 | 3 | | |
| 21 | Greenfield and Turners Falls | | | 200 | 100 | | | | | | | | | | |
| 25 | Holyoke Street Railway | 4 | 140 | | | 1 | 120 | | | | | | | | |
| 31 | Marlboro and Westboro | | | | | | | | | | | 1 | 13 | | |
| 35 | Milford and Uxbridge | 3 | 225 | | | 1 | 200 | | | 1 | 225 | | | | |
| 44 | Newton and Boston | | | 263 | 200 | | | | | | | | | | |
| 53 | Brockton and Plymouth | 7 | 1,050 | | | | | | | 1 | 325 | | | | |
| 59 | Springfield and Eastern | | | | | 2 | 250 | | | | | | | | |
| 68 | Warren, Brookfield and Spencer | | | | | 1 | 90 | | | | | | | | |
| 70 | Woronoco Street Railway | | | 266 | 100 | | | | | | | | | | |
| 72 | Worcester Consolidated | | | 536 | 432 | 1 | 80 | | | | | | | | |
| 74 | Worcester and Southbridge | 3 | 600 | | | | | | | | | | | | |
| | MICHIGAN. | | | | | | | | | | | | | | |
| | Total for state | 41 | 14,777 | 802 | (1) | 5 | 875 | 9 | 1,004 | 10 | 3,533 | 6 | 70 | 16 | 140 |
| 4 | Detroit United Railway | 4 | 1,600 | 802 | (1) | 2 | 500 | 2 | 500 | | | | | | |
| 5 | Detroit and Port Huron Shore Line | 7 | 3,733 | | | | | | | 2 | 533 | | | 12 | 60 |
| 6 | Detroit, Ypsilanti, Ann Arbor and Jackson | 4 | 2,200 | | | 3 | 375 | 2 | 100 | | | | | | |
| 7 | Escanaba Electric Railway | | | | | | | 1 | 100 | | | | | | |
| 9 | Grand Rapids, Grand Haven and Muskegon | 4 | 2,010 | | | | | | | | | 1 | 5 | 4 | 80 |
| 10 | Grand Rapids, Holland and Lake Michigan | 7 | 1,867 | | | | | | | 2 | 800 | 2 | 45 | | |
| 11 | Houghton County Street Railway | 6 | 667 | | | | | | | 1 | 333 | | | | |
| 13 | Negaunee and Ishpeming | | | | | | | 2 | 250 | | | | | | |
| 15 | Michigan Traction | 9 | 2,700 | | | | | | | 3 | 1,200 | | | | |
| 17 | Manistee, Filer City and Eastlake | | | | | | | | | | | 1 | 2 | | |
| 19 | Menominee Light, Railway and Power | | | | | | | | | | | 1 | 3 | | |
| 20 | Toledo and Monroe | | | | | | | | | 2 | 667 | 1 | 15 | | |
| 24 | Saginaw Valley Traction | | | | | | | 2 | 54 | | | | | | |

[1] Not reported.

SUPPLEMENTARY TABLE 5.—AUXILIARY ELECTRIC EQUIPMENT—Continued.

| Number. | STATE AND NAME OF COMPANY. | TRANSFORMERS. | | STORAGE-BATTERY CELLS. | | BOOSTERS. | | AUXILIARY GENERATORS. | | ROTARIES. | | ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Direct current. | | Alternating current. | |
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | MINNESOTA. | | | | | | | | | | | | | | |
| | Total for state | 12 | 4,000 | 576 | 3,000 | | | | | | | | | | |
| 3 | Twin City Rapid Transit | 12 | 4,000 | 576 | 3,000 | | | | | | | | | | |
| | MISSOURI. | | | | | | | | | | | | | | |
| | Total for state | 14 | 3,680 | | | 3 | 685 | 6 | 195 | 3 | 2,400 | 25 | 831 | 2 | 125 |
| 6 | Metropolitan | | | | | | | | | | | 2 | 150 | | |
| 8 | St. Joseph Railway, Light, Heat and Power | 4 | 600 | | | 1 | 25 | 2 | 30 | | | | | | |
| 9 | St. Louis Transit | 1 | 80 | | | 2 | 660 | 4 | 165 | | | 22 | 666 | 2 | 125 |
| 10 | St. Louis and Suburban | 6 | 2,000 | | | | | | | 2 | 1,600 | | | | |
| 12 | St. Louis and Kirkwood | 3 | 1,000 | | | | | | | 1 | 800 | | | | |
| 14 | Railway and Electric of Sedalia | | | | | | | | | | | 1 | 15 | | |
| | NEW HAMPSHIRE. | | | | | | | | | | | | | | |
| | Total for state | 6 | 750 | 250 | 53 | 1 | 100 | 1 | 335 | 2 | 400 | 4 | 7 | 5 | 8 |
| 1 | Concord Street Railway | | | | | | | 1 | 335 | | | | | | |
| 3 | Exeter, Hampton and Amesbury | 6 | 750 | | | | | | | 2 | 400 | 3 | 6 | 5 | 8 |
| 5 | Laconia Street Railway | | | 250 | 53 | | | | | | | | | | |
| 7 | Portsmouth Electric Railway | | | | | 1 | 100 | | | | | 1 | 1 | | |
| | NEW JERSEY. | | | | | | | | | | | | | | |
| | Total for state | | | 350 | 288 | 5 | 389 | 1 | 120 | | | 6 | 57 | | |
| 1 | West Jersey and Seashore | | | | | 1 | 160 | | | | | | | | |
| 5 | Camden and Suburban | | | | | 1 | 13 | | | | | 2 | 10 | | |
| 8 | New Jersey and Hudson River Railway and Ferry | | | 350 | 288 | | | | | | | | | | |
| 10 | North Jersey Street Railway | | | | | | | | | | | 1 | 7 | | |
| 13 | Atlantic Coast Electric Railroad | | | | | | | 1 | 120 | | | 3 | 40 | | |
| 16 | Middlesex and Somerset | | | | | 2 | 166 | | | | | | | | |
| 23 | Trenton Street Railway | | | | | 1 | 50 | | | | | | | | |
| | NEW YORK. | | | | | | | | | | | | | | |
| | Total for state | 39 | 6,281 | 1,564 | 3,261 | 12 | 3,310 | 16 | 1,950 | 7 | 3,978 | 190 | 3,459 | 27 | 2,521 |
| 1 | Albany and Hudson Railway and Power | 3 | 1,000 | | | | | 2 | 150 | | | 6 | 6 | 1 | 1 |
| 3 | Hudson Valley Railway | | | 276 | 231 | | | | | | | | | | |
| 9 | Binghamton Railway | 3 | 440 | | | | | | | 1 | 400 | | | | |
| 10 | International Railway | | | | | | | | | | | 2 | 50 | | |
| 14 | Ontario Light and Traction | | | | | 1 | 50 | | | | | | | | |
| 31 | Huntington Railroad | | | 250 | 70 | | | | | | | | | | |
| 32 | Ithaca Street Railway | | | | | | | 4 | 250 | | | | | | |
| 41 | Interurban | | | | | | | 6 | 1,235 | | | 166 | 2,823 | 6 | 1,890 |
| 55 | Manhattan Railway (elevated) | 16 | 3,839 | 50 | 200 | | | 8 | 265 | 2 | 2,140 | | | | |
| 58 | Brooklyn Rapid Transit | | | 496 | 2,250 | 5 | 2,260 | | | | | 9 | 440 | 13 | 550 |
| 59 | Coney Island and Brooklyn | | | | | 1 | 500 | | | | | 4 | 100 | | |
| 61 | New York and Queens County | | | | | 1 | (1) | | | | | | | | |
| 68 | Olean, Rock City and Bradford | | | | | 2 | 300 | | | | | | | | |
| 71 | Oneonta, Cooperstown and Richfield Springs | | | | | 1 | 150 | | | | | | | | |
| 73 | Oswego Traction | | | | | | | | | | | 1 | 15 | | |
| 74 | Peekskill Lighting and Railroad | | | 264 | 110 | | | | | | | | | | |
| 80 | Rochester Railway | | | 228 | 400 | | | 1 | 50 | | | | | | |
| 82 | Rochester and Sodus Bay | 6 | 135 | | | | | | | 1 | 350 | | | | |
| 85 | Schenectady Railway | 11 | 867 | | | | | | | 3 | 1,088 | | | 7 | 80 |
| 89 | Syracuse and Suburban | | | | | | | | | | | 1 | 15 | | |
| 92 | Black River Traction | | | | | 1 | 50 | | | | | 1 | 10 | | |
| | NORTH CAROLINA. | | | | | | | | | | | | | | |
| | Total for state | 3 | 300 | | | | | | | | | 1 | 5 | 1 | 5 |
| 1 | Asheville Electric | 3 | 300 | | | | | | | | | | | 1 | 5 |
| 4 | Charlotte Railway, Light and Power | | | | | | | | | | | 1 | 5 | | |
| | OHIO. | | | | | | | | | | | | | | |
| | Total for state | 76 | 9,317 | 2,292 | 2,392 | 12 | 1,162 | 3 | 81 | 15 | 5,704 | 28 | 834 | 5 | 9 |
| 2 | Pennsylvania and Ohio | 6 | 800 | | | | | | | 2 | 667 | 2 | 7 | | |
| 5 | Stark Electric | 4 | 402 | | | | | 2 | 81 | 2 | 669 | | | | |
| 6 | Canton-Akron | 6 | 800 | 250 | 180 | | | | | 2 | 800 | | | 4 | 4 |
| 8 | Cincinnati Traction | | | | | | | | | | | 10 | 400 | | |
| 10 | Mill Creek Valley | | | | | | | | | | | 2 | 40 | | |
| 11 | Cincinnati, Dayton and Toledo | | | 290 | 160 | | | | | | | 2 | 17 | | |
| 13 | Cleveland Electric Railway | | | 276 | 1,280 | | | | | | | | | | |
| 14 | Cleveland City Railway | | | | | | | | | | | 3 | 50 | | |
| 16 | Eastern Ohio Traction | 6 | (1) | 900 | (1) | 2 | (1) | 1 | (1) | | | | | | |
| 17 | Cleveland, Painesville and Eastern | | | | | | | | | | | 1 | 15 | | |
| 20 | Columbus, London and Springfield | 6 | 2,400 | | | | | | | | | | | | |
| 21 | Columbus, Buckeye Lake and Newark | 12 | 1,600 | | | | | | | 4 | 1,600 | | | | |
| 24 | Oakwood Street | | | | | | | | | | | 1 | 5 | | |
| 25 | Dayton and Western | | | | | 1 | 100 | | | | | | | | |
| 26 | Dayton and Northern | 2 | 315 | 312 | 300 | | | | | 2 | 315 | | | | |
| 27 | Dayton, Springfield and Urbana | | | | | 1 | 150 | | | | | | | | |
| 28 | Dayton and Troy | | | | | 2 | 135 | | | | | 1 | 250 | | |
| 36 | Western Ohio Railway | 4 | 2,000 | | | | | | | 2 | 1,120 | | | | |
| 38 | Mansfield Railway, Light and Power | | | | | 1 | 120 | | | | | | | | |
| 47 | Springfield and Xenia | 3 | 800 | | | | | | | | | 1 | 5 | | |
| 52 | Toledo Railways and Light | | | | | 2 | 333 | | | 1 | 533 | | | | |
| 53 | Toledo, Bowling Green and Southern | | | | | 1 | 24 | | | | | | | | |
| 54 | Toledo, Fostoria and Findlay | | | | | 1 | 100 | | | | | 1 | 5 | | |
| 55 | Toledo and Western | | | | | | | | | | | | | 1 | 5 |
| 56 | Lake Shore | 27 | 200 | | | | | | | | | 4 | 40 | | |
| 57 | Toledo and Maumee Valley | | | | | 1 | 200 | | | | | | | | |
| 62 | Mahoning Valley | | | 264 | 472 | | | | | | | | | | |

[1] Not reported.

SUPPLEMENTARY TABLE 5.—AUXILIARY ELECTRIC EQUIPMENT—Continued.

| Number. | STATE AND NAME OF COMPANY. | TRANSFORMERS. | | STORAGE-BATTERY CELLS. | | BOOSTERS. | | AUXILIARY GENERATORS. | | ROTARIES. | | ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Direct current. | | Alternating current. | |
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | OREGON. | | | | | | | | | | | | | | |
| | Total for state | | | | | | | | | | | 1 | 125 | | |
| 2 | Portland Railway | | | | | | | | | | | 1 | 125 | | |
| | PENNSYLVANIA. | | | | | | | | | | | | | | |
| | Total for state | 8 | 879 | 4,035 | 3,820 | 19 | 4,663 | 5 | 124 | 15 | 4,063 | 35 | 485 | | |
| 1 | Lehigh Valley Traction | | | 264 | 93 | 1 | 60 | | | | | | | | |
| 3 | Allentown and Kutztown Traction | | | 245 | 267 | | | | | | | | | | |
| 4 | Altoona and Logan Valley | | | 264 | 250 | | | 1 | 14 | | | | | | |
| 9 | Columbia and Montour | 3 | 150 | | | | | | | | | | | | |
| 14 | Chester Traction | | | | | 1 | 185 | | | | | 1 | 5 | | |
| 30 | Harrisburg Traction | | | | | | | | | | | 2 | 85 | | |
| 35 | Conestoga Traction | 2 | 400 | | | | | | | 1 | 330 | 3 | 3 | | |
| 43 | Meadville Traction | | | | | | | | | | | 1 | 5 | | |
| 48 | Schuylkill Valley Traction | | | | | 2 | 230 | | | | | 1 | 15 | | |
| 50 | Peoples Street Railway | | | | | | | | | | | 1 | 5 | | |
| 56 | Union Traction | | | 270 | 300 | 8 | 2,105 | 2 | 50 | | | 22 | 342 | | |
| 58 | Fairmount Park Transportation | | | | | | | | | | | 1 | 10 | | |
| 59 | Delaware County and Philadelphia | 1 | 4 | | | | | | | | | | | | |
| 61 | Pittsburg Railways | | | 2,750 | 2,660 | 2 | 1,400 | | | 14 | 3,733 | | | | |
| 68 | Pittsburg, McKeesport and Connellsville | | | | | 1 | 150 | | | | | | | | |
| 73 | United Traction | | | | | 1 | 180 | | | | | | | | |
| 77 | Scranton Railway | | | | | 1 | 133 | | | | | 1 | 30 | | |
| 78 | Shamokin and Mt. Carmel | | | | | 1 | 160 | | | | | | | | |
| 84 | Titusville Electric Traction | | | | | | | | | | | 1 | 5 | | |
| 88 | Wilkesbarre and Wyoming Valley | | | | | 1 | 60 | 2 | 60 | | | 1 | 30 | | |
| 89 | Wilkesbarre, Dallas and Harveys Lake | 2 | 325 | | | | | | | | | | | | |
| 94 | Red Lion and Windsor | | | 242 | 250 | | | | | | | | | | |
| | RHODE ISLAND. | | | | | | | | | | | | | | |
| | Total for state | | | 485 | 600 | 3 | 292 | | | | | | | | |
| 1 | Sea View Railroad | | | | | 1 | 92 | | | | | | | | |
| 3 | Union Railroad | | | | | 2 | 200 | | | | | | | | |
| 6 | New York, New Haven and Hartford | | | 485 | 600 | | | | | | | | | | |
| | SOUTH CAROLINA. | | | | | | | | | | | | | | |
| | Total for state | 4 | 150 | | | 1 | 250 | | | | | | | 2 | 450 |
| 2 | Charleston Railway, Gas and Electric | 4 | 150 | | | 1 | 250 | | | | | | | | |
| 3 | Columbia Railway, Light and Power | | | | | | | | | | | | | 2 | 450 |
| | TENNESSEE. | | | | | | | | | | | | | | |
| | Total for state | | | | | 1 | 115 | | | | | 4 | 60 | | |
| 3 | Rapid Transit of Chattanooga | | | | | | | | | | | 2 | 30 | | |
| 7 | Memphis Street Railway | | | | | 1 | 115 | | | | | 2 | 30 | | |
| | TEXAS. | | | | | | | | | | | | | | |
| | Total for state | 7 | 1,400 | | | | | 2 | 40 | 2 | 660 | 1 | 3 | | |
| 7 | Northern Texas Traction | 7 | 1,400 | | | | | 2 | 40 | 2 | 660 | | | | |
| 12 | Paris Transit | | | | | | | | | | | 1 | 3 | | |
| | VERMONT. | | | | | | | | | | | | | | |
| | Total for state | | | 216 | 100 | | | | | | | 1 | 2 | | |
| 1 | Barre and Montpelier | | | | | | | | | | | 1 | 2 | | |
| 6 | St. Albans Street Railway | | | 216 | 100 | | | | | | | | | | |
| | VIRGINIA. | | | | | | | | | | | | | | |
| | Total for state | 4 | 1,133 | | | 2 | 200 | 2 | 27 | | | | | | |
| 1 | Charlottesville City and Suburban | | | | | | | 2 | 27 | | | | | | |
| 6 | Newport News and Old Point Railway and Electric | 3 | 1,000 | | | | | | | | | | | | |
| 10 | Norfolk Railway and Light | | | | | 1 | 75 | | | | | | | | |
| 12 | Richmond and Petersburg Electric | | | | | 1 | 125 | | | | | | | | |
| 15 | Radford Water Power | 1 | 133 | | | | | | | | | | | | |
| | WASHINGTON. | | | | | | | | | | | | | | |
| | Total for state | 2 | 400 | | | | | 5 | 149 | 3 | 1,634 | 6 | 91 | | |
| 1 | Everett Railway and Electric | 2 | 400 | | | | | | | 1 | 334 | | | | |
| 2 | Olympia Light and Power | | | | | | | 2 | 66 | | | | | | |
| 3 | Seattle Electric | | | | | | | | | | | 5 | 76 | | |
| 7 | Tacoma Railway and Power | | | | | | | 3 | 83 | 2 | 1,300 | | | | |
| 8 | Northern Railway and Improvement | | | | | | | | | | | 1 | 15 | | |
| | WEST VIRGINIA. | | | | | | | | | | | | | | |
| | Total for state | | | | | | | | | 6 | 1,000 | | | | |
| 4 | Camden Interstate Railway | | | | | | | | | 6 | 1,000 | | | | |
| | WISCONSIN. | | | | | | | | | | | | | | |
| | Total for state | 6 | 640 | 848 | 366 | 2 | 346 | 2 | 500 | | | 20 | 320 | 15 | 588 |
| 3 | Chippewa Valley Electric Railroad | | | | | | | 1 | 300 | | | | | | |
| 6 | Janesville Street Railway | | | | | | | | | | | 1 | 6 | | |
| 12 | Merrill Railway and Lighting | | | 240 | 40 | | | | | | | | | | |
| 13 | Milwaukee Electric Railway and Light | 6 | 640 | 608 | 326 | 2 | 346 | 1 | 200 | | | 19 | 314 | 15 | 588 |

## Supplementary Table 6.—Substation Equipment.

| Number. | State and name of company. | Rotary converters, etc. | | Transformers. | | Storage-battery cells. | | Miscellaneous. | |
|---|---|---|---|---|---|---|---|---|---|
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | UNITED STATES | [1] 358 | 186,688 | [2] 926 | 221,459 | [3] 20,960 | 39,249 | [4] 40 | 6,235 |
| | ALABAMA. | | | | | | | | |
| | Total for state | | | 4 | 375 | | | | |
| 2 | Birmingham Railway, Light and Power | | | 4 | 375 | | | | |
| | CALIFORNIA. | | | | | | | | |
| | Total for state | 4 | 1,277 | 42 | 9,206 | | | | |
| 7 | Los Angeles and Pasadena | 1 | 75 | | | | | | |
| 20 | Redlands Street Railway | 1 | 135 | 3 | 160 | | | | |
| 22 | Sacramento Electric, Gas and Railway | | | 33 | 7,600 | | | | |
| 28 | United Railroads of San Francisco | 2 | 1,067 | 6 | 1,446 | | | | |
| | CONNECTICUT. | | | | | | | | |
| | Total for state | 1 | 200 | 3 | 225 | | | | |
| 19 | Peoples Tramway | 1 | 200 | 3 | 225 | | | | |
| | DISTRICT OF COLUMBIA. | | | | | | | | |
| | Total for district | 5 | 1,400 | 10 | 1,400 | 508 | 133 | | |
| 2 | Brightwood Railway | 3 | 600 | 6 | 600 | 264 | 80 | | |
| 4 | City and Suburban of Washington | 2 | 800 | 4 | 800 | 244 | 53 | | |
| | FLORIDA. | | | | | | | | |
| | Total for state | | | 4 | 800 | | | 2 | 530 |
| 6 | Tampa Electric | | | 4 | 800 | | | 2 | 530 |
| | GEORGIA. | | | | | | | | |
| | Total for state | 3 | 1,600 | 3 | 2,000 | 150 | 910 | | |
| 2 | Georgia Railway and Electric | 3 | 1,600 | 3 | 2,000 | 150 | 910 | | |
| | ILLINOIS. | | | | | | | | |
| | Total for state | 12 | 5,617 | 28 | 8,113 | 1,566 | 556 | 3 | [5] |
| 21 | Chicago and Milwaukee | 4 | 700 | 12 | 2,413 | 504 | 200 | | |
| 22 | Lake Street Elevated Railroad | 2 | 2,667 | 6 | 3,000 | | | | |
| 23 | Chicago and Joliet | 6 | 2,250 | 10 | 2,700 | 864 | 256 | 3 | [5] |
| 25 | Danville Railway and Light | | | | | 198 | 100 | | |
| | INDIANA. | | | | | | | | |
| | Total for state | 19 | 6,088 | 50 | 7,125 | 2,112 | 1,250 | | |
| 5 | Fort Wayne and Southwestern | 2 | 500 | 2 | [5] | | | | |
| 9 | Indianapolis, Shelbyville and Southeastern | 1 | 463 | 3 | [5] | | | | |
| 11 | Union Traction | 15 | 5,000 | 44 | 7,000 | 2,112 | 1,250 | | |
| 22 | Richmond Street and Interurban | 1 | 125 | 1 | 125 | | | | |
| | IOWA. | | | | | | | | |
| | Total for state | 2 | 650 | 6 | 750 | | | | |
| 9 | Interurban Railway | 1 | 450 | 3 | 450 | | | | |
| 22 | Waterloo and Cedar Falls | 1 | 200 | 3 | 300 | | | | |
| | MAINE. | | | | | | | | |
| | Total for state | 6 | 608 | 23 | 2,280 | 976 | 810 | | |
| 2 | Public Works | | | 9 | 960 | | | | |
| 3 | Penobscot Central Railway | | | | | 480 | 400 | | |
| 11 | Lewiston, Brunswick and Bath | 4 | 250 | 9 | 1,000 | | | | |
| 14 | Portsmouth, Kittery and York | | | | | 220 | 180 | | |
| 16 | Sanford and Cape Porpoise | 1 | 225 | 3 | 300 | 276 | 230 | | |
| 19 | Waterville and Fairfield Railway and Light | 1 | 133 | 2 | 20 | | | | |
| | MARYLAND. | | | | | | | | |
| | Total for state | | | | | 258 | 90 | | |
| 9 | Washington and Rockville | | | | | 258 | 90 | | |
| | MASSACHUSETTS. | | | | | | | | |
| | Total for state | 16 | 2,577 | 48 | 2,967 | 980 | 330 | | |
| 5 | Boston and Northern | 8 | 800 | 24 | 962 | | | | |
| 6 | Boston Elevated Railway | | | | | 270 | 35 | | |
| 14 | Norfolk Western Railway | 2 | 202 | 6 | 240 | 260 | 175 | | |
| 35 | Milford and Uxbridge | 1 | 225 | 3 | 225 | 450 | 120 | | |
| 53 | Brockton and Plymouth | 2 | 600 | 6 | 640 | | | | |
| 74 | Worcester and Southbridge | 3 | 750 | 9 | 900 | | | | |

[1] Exclusive of 8 for which horsepower was not reported.
[2] Exclusive of 14 for which horsepower was not reported.
[3] Exclusive of 1,080 for which horsepower was not reported.
[4] Exclusive of 3 for which horsepower was not reported.
[5] Not reported.

SUPPLEMENTARY TABLE 6.—SUBSTATION EQUIPMENT—Continued.

| Number. | STATE AND NAME OF COMPANY. | ROTARY CONVERTERS, ETC. | | TRANSFORMERS. | | STORAGE-BATTERY CELLS. | | MISCELLANEOUS. | |
|---|---|---|---|---|---|---|---|---|---|
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | MICHIGAN. | | | | | | | | |
| | Total for state | 40 | 11,870 | 79 | 16,399 | 552 | (1) | | |
| 4 | Detroit United Railway | 3 | 1,000 | 8 | 1,066 | 552 | (1) | | |
| 5 | Detroit and Port Huron Shore Line | 12 | 3,200 | 21 | 4,200 | | | | |
| 6 | Detroit, Ypsilanti, Ann Arbor and Jackson | 12 | 3,000 | 18 | 5,400 | | | | |
| 9 | Grand Rapids, Grand Haven and Muskegon | 2 | 670 | 3 | 1,246 | | | | |
| 10 | Grand Rapids, Holland and Lake Michigan | 4 | 1,600 | 14 | 1,120 | | | | |
| 11 | Houghton County Street Railway | 2 | 667 | 6 | 667 | | | | |
| 15 | Michigan Traction | 3 | 1,200 | 9 | 2,700 | | | | |
| 20 | Toledo and Monroe | 2 | 533 | | | | | | |
| | MINNESOTA. | | | | | | | | |
| | Total for state | 8 | 6,800 | 24 | 6,800 | | | | |
| 8 | Twin City Rapid Transit | 8 | 6,800 | 24 | 6,800 | | | | |
| | MISSOURI. | | | | | | | | |
| | Total for state | 10 | 6,165 | 35 | 7,697 | 55 | 30 | | |
| 5 | Southwest Missouri Electric Railway | 4 | 1,333 | 12 | 1,280 | | | | |
| 9 | St. Louis Transit | 4 | 3,232 | 16 | 4,415 | 55 | 30 | | |
| 10 | St. Louis and Suburban | 2 | 1,600 | 6 | 2,000 | | | | |
| 14 | Railway and Electric of Sedalia | | | 1 | 2 | | | | |
| | MONTANA. | | | | | | | | |
| | Total for state | 2 | 250 | | | | | | |
| 5 | Helena Power and Light | 2 | 250 | | | | | | |
| | NEW HAMPSHIRE. | | | | | | | | |
| | Total for state | 8 | 3,600 | 24 | 2,900 | 264 | 1,200 | | |
| 3 | Exeter, Hampton and Amesbury | 8 | 3,600 | 24 | 2,900 | | | | |
| 7 | Portsmouth Electric Railway | | | | | 264 | 1,200 | | |
| | NEW JERSEY. | | | | | | | | |
| | Total for state | 4 | 800 | 8 | 640 | 1,332 | 816 | | |
| 2 | Bridgeton and Millville | 4 | 800 | 8 | 640 | 264 | 308 | | |
| 5 | Camden and Suburban | | | | | 504 | 308 | | |
| 16 | Middlesex and Somerset | | | | | 300 | 200 | | |
| 23 | Trenton Street Railway | | | | | 264 | (1) | | |
| | NEW YORK. | | | | | | | | |
| | Total for state | 107 | 105,998 | 322 | 116,332 | 4,569 | 25,102 | 28 | 4,700 |
| 1 | Albany and Hudson Railway and Power | 6 | 2,100 | 30 | 3,900 | | | | |
| 2 | United Traction | 9 | 4,500 | 27 | 5,400 | | | | |
| 3 | Hudson Valley Railway | | | | | 264 | 115 | | |
| 9 | Binghamton Railway | 2 | 400 | 6 | 480 | | | 1 | 200 |
| 10 | International Railway | 20 | 10,000 | 48 | 8,000 | 840 | 4,820 | 10 | 100 |
| 17 | Cortland County Traction | | | 1 | 10 | | | | |
| 38 | New York and Long Island Traction | 1 | 268 | 3 | 402 | 270 | 97 | | |
| 41 | Interurban | 37 | 46,230 | 102 | 45,000 | 2,493 | 18,000 | 16 | 4,000 |
| 55 | Manhattan Railway (elevated) | 13 | 26,130 | 63 | 32,640 | 220 | 1,100 | | |
| 58 | Brooklyn Rapid Transit | 13 | 14,070 | 39 | 20,100 | 248 | 750 | 1 | 400 |
| 82 | Rochester and Sodus Bay | 2 | 700 | 3 | 400 | | | | |
| 85 | Schenectady Railway | 4 | 1,600 | | | | | | |
| 92 | Black River Traction | | | | | 234 | 220 | | |
| | NORTH CAROLINA. | | | | | | | | |
| | Total for state | 1 | 400 | 14 | 2,580 | | | | |
| 1 | Asheville Electric | 1 | 400 | 3 | 880 | | | | |
| 7 | Fries Manufacturing and Power | | | 11 | 1,700 | | | | |
| | OHIO. | | | | | | | | |
| | Total for state | 65 | 15,088 | 102 | 12,983 | 1,128 | 2,221 | | |
| 2 | Pennsylvania and Ohio | 1 | 330 | 3 | 400 | | | | |
| 6 | Canton-Akron | 3 | 1,500 | 9 | 4,500 | | | | |
| 11 | Cincinnati, Dayton and Toledo | 1 | 267 | 3 | 600 | | | | |
| 16 | Eastern Ohio Traction | 6 | (1) | 3 | (1) | | | | |
| 20 | Columbus London and Springfield | 11 | 400 | | | | | | |
| 21 | Columbus, Buckeye Lake and Newark | 2 | 800 | 6 | 800 | | | | |
| 36 | Western Ohio Railway | 10 | 2,800 | 15 | 2,000 | | | | |
| 47 | Springfield and Xenia | 2 | 800 | 6 | 800 | 300 | 250 | | |
| 49 | Steubenville Traction and Light | | | | | 252 | 1,664 | | |
| 55 | Toledo and Western | 7 | 3,060 | 21 | 2,100 | | | | |
| 56 | Lake Shore | 14 | 3,800 | 27 | 200 | | | | |
| 60 | Youngstown Park and Falls | 2 | 533 | 2 | 533 | | | | |
| 61 | Youngstown-Sharon Railway and Light | 6 | 798 | 7 | 1,050 | 576 | 307 | | |
| | PENNSYLVANIA. | | | | | | | | |
| | Total for state | 21 | 4,690 | 34 | 4,875 | 4,548 | 3,689 | | |
| 9 | Columbia and Montour | 1 | 167 | 3 | 150 | | | | |
| 18 | Newtown Electric Street Railway | 2 | 200 | | | | | | |
| 30 | Harrisburg Traction | | | | | 264 | 354 | | |
| 35 | Conestoga Traction | 1 | 330 | 2 | 400 | | | | |
| 53 | Union Traction | | | | | 1,270 | 655 | | |
| 56 | Philadelphia and West Chester Traction | 2 | (1) | 6 | (1) | 264 | (1) | | |
| 61 | Pittsburg Railways | 14 | 3,733 | 21 | 4,000 | 2,750 | 2,680 | | |
| 89 | Wilkesbarre, Dallas and Harveys Lake | 1 | 260 | 2 | 325 | | | | |

[1] Not reported.

SUPPLEMENTARY TABLE 6.—SUBSTATION EQUIPMENT—Continued.

| Number. | STATE AND NAME OF COMPANY | ROTARY CONVERTERS, ETC. | | TRANSFORMERS. | | STORAGE-BATTERY CELLS. | | MISCELLANEOUS. | |
|---|---|---|---|---|---|---|---|---|---|
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | RHODE ISLAND. | | | | | | | | |
| | Total for state | 4 | 1,466 | 8 | 1,866 | 1,452 | 765 | ..... | ..... |
| 1 | Sea View Railroad | ..... | ..... | ..... | ..... | 248 | 50 | ..... | ..... |
| 3 | Union Railroad | ..... | ..... | ..... | ..... | 280 | 245 | ..... | ..... |
| 4 | Rhode Island Suburban | 4 | 1,466 | 8 | 1,866 | 528 | 200 | ..... | ..... |
| 5 | Providence and Danielson | ..... | ..... | ..... | ..... | 396 | 270 | ..... | ..... |
| | SOUTH CAROLINA. | | | | | | | | |
| | Total for state | 2 | 533 | 6 | 600 | ..... | ..... | 4 | 472 |
| 3 | Columbia Railway, Light and Power | 2 | 533 | 6 | 600 | ..... | ..... | 4 | 472 |
| | TEXAS. | | | | | | | | |
| | Total for state | 4 | 1,900 | 12 | 2,000 | ..... | ..... | ..... | ..... |
| 7 | Northern Texas Traction | 4 | 1,900 | 12 | 2,000 | ..... | ..... | ..... | ..... |
| | VERMONT. | | | | | | | | |
| | Total for state | 1 | 210 | ..... | ..... | 508 | 320 | ..... | ..... |
| 1 | Barre and Montpelier | 1 | 210 | ..... | ..... | 248 | 150 | ..... | ..... |
| 2 | Bellows Falls and Saxtons River | ..... | ..... | ..... | ..... | 260 | 170 | ..... | ..... |
| | VIRGINIA. | | | | | | | | |
| | Total for state | ..... | ..... | 8 | 1,200 | ..... | ..... | ..... | ..... |
| 5 | Citizens Railway, Light and Power | ..... | ..... | 8 | 1,200 | ..... | ..... | ..... | ..... |
| | WASHINGTON. | | | | | | | | |
| | Total for state | 5 | 3,333 | 10 | 4,000 | ..... | ..... | 5 | 333 |
| 3 | Seattle Electric | 5 | 3,333 | 10 | 4,000 | ..... | ..... | 5 | 333 |
| | WEST VIRGINIA. | | | | | | | | |
| | Total for state | 12 | 1,168 | 20 | 2,456 | 818 | 827 | ..... | ..... |
| 4 | Camden Interstate Railway | 12 | 1,168 | 20 | 2,456 | 530 | 760 | ..... | ..... |
| 5 | Parkersburg, Marietta and Interurban | ..... | ..... | ..... | ..... | 288 | 67 | ..... | ..... |
| | WISCONSIN. | | | | | | | | |
| | Total for state | 4 | 2,400 | 13 | 2,890 | 264 | 200 | 1 | 200 |
| 3 | Chippewa Valley Electric Railroad | 1 | 200 | 3 | 150 | 264 | 200 | 1 | 200 |
| 13 | Milwaukee Electric Railway and Light | 2 | 2,000 | 5 | 2,000 | ..... | ..... | ..... | ..... |
| 14 | Milwaukee Light, Heat and Traction | ..... | ..... | 2 | 500 | ..... | ..... | ..... | ..... |
| 15 | Winnebago Traction | 1 | 200 | 3 | 240 | ..... | ..... | ..... | ..... |

# APPENDICES

APPENDIX A.—SCHEDULE

APPENDIX B.—INSTRUCTIONS TO SPECIAL AGENTS

SUPPLEMENTARY TABLE 5.—AUXILIARY ELECTRIC EQUIPMENT—Continued.

| Number. | STATE AND NAME OF COMPANY. | TRANSFORMERS. | | STORAGE-BATTERY CELLS. | | BOOSTERS. | | AUXILIARY GENERATORS. | | ROTARIES. | | ELECTRIC MOTORS USED IN POWER PLANT OR SUBSTATION AND MISCELLANEOUS WORK. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Direct current. | | Alternating current. | |
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | INDIANA. | | | | | | | | | | | | | | |
| | Total for state | 20 | 5,200 | 264 | 256 | 1 | 320 | 2 | 150 | 6 | 1,688 | 6 | 158 | | |
| 3 | Evansville Electric Railway | | | | | | | | | | | 1 | 20 | | |
| 5 | Fort Wayne and Southwestern | 1 | 75 | | | | | | | 1 | 100 | | | | |
| 7 | Indianapolis Street Railway | | | | | 1 | 320 | | | | | 2 | 95 | | |
| 9 | Indianapolis, Shelbyville and Southeastern | 3 | (1) | | | | | | | 1 | 463 | | | | |
| 11 | Union Traction | 15 | 5,000 | 264 | 256 | | | 2 | 150 | 3 | 1,000 | | | | |
| 22 | Richmond Street and Interurban | 1 | 125 | | | | | | | 1 | 125 | | | | |
| 23 | Indiana Railway | | | | | | | | | | | 3 | 38 | | |
| | IOWA. | | | | | | | | | | | | | | |
| | Total for state | 12 | 1,057 | 215 | 100 | | | 5 | 63 | 1 | 450 | 1 | 15 | 2 | |
| 3 | Cedar Rapids and Marion City | | | | | | | | | | | 1 | 15 | | |
| 8 | Des Moines City Railway | | | | | | | | | | | | | 2 | |
| 9 | Interurban Railway | 3 | 450 | | | | | | | 1 | 450 | | | | |
| 10 | Union Electric | | | | | | | 3 | 50 | | | | | | |
| 15 | Marshalltown Light, Power and Railway | 1 | 5 | | | | | | | | | | | | |
| 17 | Citizens Railway and Light | | | | | | | 2 | 13 | | | | | | |
| 18 | Ottumwa Traction and Light | 3 | 300 | | | | | | | | | | | | |
| 21 | Tama and Toledo | 2 | 2 | | | | | | | | | | | | |
| 22 | Waterloo and Cedar Falls | 3 | 300 | 215 | 100 | | | | | | | | | | |
| | KANSAS. | | | | | | | | | | | | | | |
| | Total for state | 4 | 225 | | | | | | | | | | | | |
| 11 | Wichita Railroad and Light | 4 | 225 | | | | | | | | | | | | |
| | KENTUCKY. | | | | | | | | | | | | | | |
| | Total for state | | | | | | | | | | | 5 | 87 | | |
| 7 | Louisville Railway | | | | | | | | | | | 4 | 75 | | |
| 12 | Paducah City Railway | | | | | | | | | | | 1 | 12 | | |
| | LOUISIANA. | | | | | | | | | | | | | | |
| | Total for state | | | | | 1 | 117 | | | | | | | | |
| 5 | New Orleans Railways | | | | | 1 | 117 | | | | | | | | |
| | MAINE. | | | | | | | | | | | | | | |
| | Total for state | 406 | 2,500 | 524 | 500 | 5 | 514 | | | | | 2 | 21 | 1 | |
| 2 | Public Works | | | | | 4 | 354 | | | | | | | 1 | |
| 6 | Biddeford and Saco | | | 264 | 200 | | | | | | | | | | |
| 11 | Lewiston, Brunswick and Bath | 6 | 1,000 | | | | | | | | | 1 | 20 | | |
| 13 | Portland Railroad | | | | | 1 | 160 | | | | | | | | |
| 14 | Portsmouth, Kittery and York | | | | | | | | | | | 1 | 1 | | |
| 19 | Waterville and Fairfield Railway and Light | 400 | 1,500 | 260 | 300 | | | | | | | | | | |
| | MARYLAND. | | | | | | | | | | | | | | |
| | Total for state | | | 260 | 230 | 5 | 1,033 | | | | | | | | |
| 1 | United Railways | | | 260 | 230 | 5 | 1,033 | | | | | | | | |
| | MASSACHUSETTS. | | | | | | | | | | | | | | |
| | Total for state | 32 | 2,655 | 1,913 | 1,112 | 11 | 1,368 | 3 | 20 | 8 | 1,083 | 47 | 1,025 | | |
| 1 | Amherst and Sunderland | | | 216 | 180 | | | | | | | | | | |
| 3 | Lexington and Boston | | | 432 | 100 | | | | | | | | | | |
| 4 | Old Colony Street Railway | | | | | 2 | 400 | 2 | 8 | | | | | | |
| 5 | Boston and Northern | 15 | 640 | | | 2 | 158 | 1 | 12 | 4 | 400 | 5 | 9 | | |
| 6 | Boston Elevated Railway | | | | | | | | | 2 | 133 | 40 | 1,000 | | |
| 10 | Hoosac Valley | | | | | 1 | 75 | | | | | | | | |
| 14 | Norfolk Western Railway | | | | | | | | | | | 1 | 3 | | |
| 21 | Greenfield and Turners Falls | | | 200 | 100 | | | | | | | | | | |
| 25 | Holyoke Street Railway | 4 | 140 | | | 1 | 120 | | | | | | | | |
| 31 | Marlboro and Westboro | | | | | | | | | | | 1 | 13 | | |
| 35 | Milford and Uxbridge | 3 | 225 | | | 1 | 200 | | | 1 | 225 | | | | |
| 44 | Newton and Boston | | | 263 | 200 | | | | | | | | | | |
| 53 | Brockton and Plymouth | 7 | 1,050 | | | | | | | 1 | 325 | | | | |
| 59 | Springfield and Eastern | | | | | 2 | 250 | | | | | | | | |
| 68 | Warren, Brookfield and Spencer | | | | | 1 | 90 | | | | | | | | |
| 70 | Woronoco Street Railway | | | 266 | 100 | | | | | | | | | | |
| 72 | Worcester Consolidated | | | 536 | 432 | 1 | 80 | | | | | | | | |
| 74 | Worcester and Southbridge | 3 | 600 | | | | | | | | | | | | |
| | MICHIGAN. | | | | | | | | | | | | | | |
| | Total for state | 41 | 14,777 | 802 | (1) | 5 | 875 | 9 | 1,004 | 10 | 3,533 | 6 | 70 | 16 | |
| 4 | Detroit United Railway | 4 | 1,600 | 802 | (1) | 2 | 500 | 2 | 500 | | | | | | |
| 5 | Detroit and Port Huron Shore Line | 7 | 3,733 | | | | | | | 2 | 533 | | | 12 | |
| 6 | Detroit, Ypsilanti, Ann Arbor and Jackson | 4 | 2,200 | | | 3 | 375 | 2 | 100 | | | | | | |
| 7 | Escanaba Electric Railway | | | | | | | 1 | 100 | | | | | | |
| 9 | Grand Rapids, Grand Haven and Muskegon | 4 | 2,010 | | | | | | | | | 1 | 5 | 4 | |
| 10 | Grand Rapids, Holland and Lake Michigan | 7 | 1,867 | | | | | | | 2 | 800 | 2 | 45 | | |
| 11 | Houghton County Street Railway | 6 | 667 | | | | | | | 1 | 333 | | | | |
| 13 | Negaunee and Ishpeming | | | | | | | 2 | 250 | | | | | | |
| 15 | Michigan Traction | 9 | 2,700 | | | | | | | 3 | 1,200 | | | | |
| 17 | Manistee, Filer City and Eastlake | | | | | | | | | | | 1 | 2 | | |
| 19 | Menominee Light, Railway and Power | | | | | | | | | | | 1 | 3 | | |
| 20 | Toledo and Monroe | | | | | | | | | 2 | 667 | 1 | 15 | | |
| 24 | Saginaw Valley Traction | | | | | | | 2 | 54 | | | | | | |

[1] Not reported.

SUPPLEMENTARY TABLE 5.—AUXILIARY ELECTRIC EQUIPMENT—Continued.

| Number. | STATE AND NAME OF COMPANY. | TRANSFORMERS. | | STORAGE-BATTERY CELLS. | | BOOSTERS. | | AUXILIARY GENERATORS. | | ROTARIES. | | ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK. | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Direct current. | | Alternating current. | |
| | | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. | No. | H. P. |
| | MINNESOTA. | | | | | | | | | | | | | | |
| | Total for state | 12 | 4,000 | 576 | 3,000 | | | | | | | | | | |
| 3 | Twin City Rapid Transit | 12 | 4,000 | 576 | 3,000 | | | | | | | | | | |
| | MISSOURI. | | | | | | | | | | | | | | |
| | Total for state | 14 | 3,680 | | | 3 | 685 | 6 | 195 | 3 | 2,400 | 25 | 831 | 2 | 125 |
| 6 | Metropolitan | | | | | | | | | | | 2 | 150 | | |
| 8 | St. Joseph Railway, Light, Heat and Power | 4 | 600 | | | 1 | 25 | 2 | 30 | | | | | | |
| 9 | St. Louis Transit | 1 | 80 | | | 2 | 660 | 4 | 165 | | | 22 | 666 | 2 | 125 |
| 10 | St. Louis and Suburban | 6 | 2,000 | | | | | | | 2 | 1,600 | | | | |
| 12 | St. Louis and Kirkwood | 3 | 1,000 | | | | | | | 1 | 800 | | | | |
| 14 | Railway and Electric of Sedalia | | | | | | | | | | | 1 | 15 | | |
| | NEW HAMPSHIRE. | | | | | | | | | | | | | | |
| | Total for state | 6 | 750 | 250 | 53 | 1 | 100 | 1 | 335 | 2 | 400 | 4 | 7 | 5 | 8 |
| 1 | Concord Street Railway | | | | | | | 1 | 335 | | | | | | |
| 3 | Exeter, Hampton and Amesbury | 6 | 750 | | | | | | | 2 | 400 | 3 | 6 | 5 | 8 |
| 5 | Laconia Street Railway | | | 250 | 53 | | | | | | | | | | |
| 7 | Portsmouth Electric Railway | | | | | 1 | 100 | | | | | 1 | 1 | | |
| | NEW JERSEY. | | | | | | | | | | | | | | |
| | Total for state | | | 350 | 288 | 5 | 389 | 1 | 120 | | | 6 | 57 | | |
| 1 | West Jersey and Seashore | | | | | 1 | 160 | | | | | | | | |
| 5 | Camden and Suburban | | | | | 1 | 13 | | | | | 2 | 10 | | |
| 8 | New Jersey and Hudson River Railway and Ferry | | | 350 | 288 | | | | | | | | | | |
| 10 | North Jersey Street Railway | | | | | | | | | | | 1 | 7 | | |
| 13 | Atlantic Coast Electric Railroad | | | | | | | 1 | 120 | | | 3 | 40 | | |
| 16 | Middlesex and Somerset | | | | | 2 | 166 | | | | | | | | |
| 23 | Trenton Street Railway | | | | | 1 | 50 | | | | | | | | |
| | NEW YORK. | | | | | | | | | | | | | | |
| | Total for state | 39 | 6,281 | 1,564 | 3,261 | 12 | 3,310 | 16 | 1,950 | 7 | 3,978 | 190 | 3,459 | 27 | 2,521 |
| 1 | Albany and Hudson Railway and Power | 3 | 1,000 | | | | | 2 | 150 | | | 6 | 6 | 1 | 1 |
| 3 | Hudson Valley Railway | | | 276 | 231 | | | | | | | | | | |
| 9 | Binghamton Railway | 3 | 440 | | | | | | | 1 | 400 | | | | |
| 10 | International Railway | | | | | | | | | | | 2 | 50 | | |
| 14 | Ontario Light and Traction | | | | | 1 | 50 | | | | | | | | |
| 31 | Huntington Railroad | | | 250 | 70 | | | | | | | | | | |
| 32 | Ithaca Street Railway | | | | | | | 4 | 250 | | | | | | |
| 41 | Interurban | | | | | | | 6 | 1,235 | | | 166 | 2,823 | 6 | 1,890 |
| 55 | Manhattan Railway (elevated) | 16 | 3,839 | 50 | 200 | | | 3 | 265 | 2 | 2,140 | | | | |
| 58 | Brooklyn Rapid Transit | | | 496 | 2,250 | 5 | 2,260 | | | | | 9 | 440 | 13 | 550 |
| 59 | Coney Island and Brooklyn | | | | | 1 | 500 | | | | | 4 | 100 | | |
| 61 | New York and Queens County | | | | | 1 | (1) | | | | | | | | |
| 68 | Olean, Rock City and Bradford | | | | | 2 | 300 | | | | | | | | |
| 71 | Oneonta, Cooperstown and Richfield Springs | | | | | 1 | 150 | | | | | | | | |
| 73 | Oswego Traction | | | | | | | | | | | 1 | 15 | | |
| 74 | Peekskill Lighting and Railroad | | | 264 | 110 | | | | | | | | | | |
| 80 | Rochester Railway | | | 228 | 400 | | | 1 | 50 | | | | | | |
| 82 | Rochester and Sodus Bay | 6 | 135 | | | | | | | 1 | 350 | | | | |
| 85 | Schenectady Railway | 11 | 867 | | | | | | | 3 | 1,088 | | | 7 | 80 |
| 89 | Syracuse and Suburban | | | | | | | | | | | 1 | 15 | | |
| 92 | Black River Traction | | | | | 1 | 50 | | | | | 1 | 10 | | |
| | NORTH CAROLINA. | | | | | | | | | | | | | | |
| | Total for state | 3 | 300 | | | | | | | | | 1 | 5 | 1 | 5 |
| 1 | Asheville Electric | 3 | 300 | | | | | | | | | | | 1 | 5 |
| 4 | Charlotte Railway, Light and Power | | | | | | | | | | | 1 | 5 | | |
| | OHIO. | | | | | | | | | | | | | | |
| | Total for state | 76 | 9,317 | 2,292 | 2,392 | 12 | 1,162 | 3 | 81 | 15 | 5,704 | 28 | 834 | 5 | 9 |
| 2 | Pennsylvania and Ohio | 6 | 800 | | | | | | | 2 | 667 | 2 | 7 | | |
| 5 | Stark Electric | 4 | 402 | | | | | 2 | 81 | 2 | 669 | | | | |
| 6 | Canton-Akron | 6 | 800 | 250 | 180 | | | | | 2 | 800 | | | 4 | 4 |
| 8 | Cincinnati Traction | | | | | | | | | | | 10 | 400 | | |
| 10 | Mill Creek Valley | | | | | | | | | | | 2 | 40 | | |
| 11 | Cincinnati, Dayton and Toledo | | | 290 | 160 | | | | | | | 2 | 17 | | |
| 13 | Cleveland Electric Railway | | | 276 | 1,280 | | | | | | | | | | |
| 14 | Cleveland City Railway | | | | | | | | | | | 3 | 50 | | |
| 16 | Eastern Ohio Traction | 6 | (1) | 900 | (1) | 2 | (1) | 1 | (1) | | | | | | |
| 17 | Cleveland, Painesville and Eastern | | | | | | | | | | | 1 | 15 | | |
| 20 | Columbus, London and Springfield | 6 | 2,400 | | | | | | | | | | | | |
| 21 | Columbus, Buckeye Lake and Newark | 12 | 1,600 | | | | | | | 4 | 1,600 | | | | |
| 24 | Oakwood Street | | | | | | | | | | | 1 | 5 | | |
| 25 | Dayton and Western | | | | | 1 | 100 | | | | | | | | |
| 26 | Dayton and Northern | 2 | 315 | 312 | 300 | | | | | 2 | 315 | | | | |
| 27 | Dayton, Springfield and Urbana | | | | | 1 | 150 | | | | | | | | |
| 28 | Dayton and Troy | | | | | 2 | 135 | | | | | 1 | 250 | | |
| 36 | Western Ohio Railway | 4 | 2,000 | | | | | | | 2 | 1,120 | | | | |
| 38 | Mansfield Railway, Light and Power | | | | | 1 | 120 | | | | | | | | |
| 47 | Springfield and Xenia | 3 | 800 | | | | | | | | | 1 | 5 | | |
| 52 | Toledo Railways and Light | | | | | 2 | 333 | | | 1 | 533 | | | | |
| 53 | Toledo, Bowling Green and Southern | | | | | 1 | 24 | | | | | | | | |
| 54 | Toledo, Fostoria and Findlay | | | | | 1 | 100 | | | | | 1 | 5 | | |
| 55 | Toledo and Western | | | | | | | | | | | | | 1 | 5 |
| 56 | Lake Shore | 27 | 200 | | | | | | | | | 4 | 40 | | |
| 57 | Toledo and Maumee Valley | | | | | 1 | 200 | | | | | | | | |
| 62 | Mahoning Valley | | | 264 | 472 | | | | | | | | | | |

[1] Not reported.

17. TRACK.

| | Owned. | Leased. | Operated under trackage rights. | Total operated. |
|---|---|---|---|---|
| Length of road (first main track)[1] | | | | |
| Length of second main track | | | | |
| Total length of main track | | | | |
| Length of sidings and turn-outs | | | | |
| Total computed as single track | | | | |

[1] Length to be stated in miles and decimals of a mile carried to three places.

Miles of track on private right of way owned by road .....
Miles of track on private right of way not owned by road .....
How many miles of single track are within city or municipal ordinance limits?..

18. ELECTRIC LINE CONSTRUCTION.

| | LENGTH OF LINE IN MILES AND FEET. | | | |
|---|---|---|---|---|
| | Span-wire construction. | Side-bracket construction. | Center pole. | Poles to mile. |
| 1. Single overhead trolley | | | | |
| 2. Double overhead trolley | | | | |
| 3. Miles of line with iron and steel poles | | | | |
| 4. Miles of line with wooden poles | | | | |
| 5. Miles of track with cast welded joints | | | | |

19. CARS, ETC.

| | Total number. | With electric equipment. | Without electric equipment. |
|---|---|---|---|
| Closed passenger cars | | | |
| Open passenger cars | | | |
| Combination cars (open and closed) | | | |
| Combination cars (passenger and freight or express) | | | |
| Total passenger cars | | | |
| Mail cars | | | |
| Express and freight cars | | | |
| Work cars | | | |
| Snow plows | | | |
| Sweepers | | | |
| Miscellaneous | | | |
| | | | |
| Total | | | |

20. FENDERS AND BRAKES.

| Total number of cars. | Equipped with fenders. | Equipped with hand brakes. | Equipped with air brakes. | Equipped with electric brakes. | Equipped with track brakes. | Equipped with friction brakes. | Equipped with more than one kind of brake. |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

21. HEATING OF CARS.

| | Number. |
|---|---|
| Cars with electric heaters | |
| Cars heated by stoves | |
| Cars heated by hot water | |
| Cars heated by other systems | |

22. LIGHTING OF CARS.

| | Number. |
|---|---|
| Cars lighted by electricity | |
| Cars lighted by gas | |
| Cars lighted by oil | |

23. WEIGHT OF RAILS.

Weight of rails per yard:
Steel, maximum.....pounds.
Steel, minimum.....pounds.
Name style (girder, tee, center groove, full groove, etc.):
.....

24. CONDUIT SYSTEMS FOR DISTRIBUTION.

| | Miles of street occupied. | Total miles of duct. |
|---|---|---|
| Concrete | | |
| Terra cotta and vitrified clay | | |
| Iron pipe, plain or lined with cement | | |
| Wooden duct, etc. | | |

25. BRIDGES BUILT FOR ROAD.

| | Number. | Aggregate length (feet). |
|---|---|---|
| Iron or steel bridges | | |
| Wooden bridges | | |
| Wooden trestles or trestle bridges | | |
| Masonry viaducts | | |
| Tunnels for cars | | |
| Total | | |

26. POWER PLANT EQUIPMENT.

| GENERATING POWER PLANT. | Number. | Total capacity in horse-power. |
|---|---|---|
| 1. Steam engines: | | |
| Under 500 H. P. | | |
| Over 500 H. P. and under 1,000 H. P | | |
| Over 1,000 H. P. and under 2,000 H. P | | |
| 2,000 H. P. and over | | |
| 2. Water wheels: | | |
| Under 500 H. P. | | |
| Over 500 H. P. and under 1,000 H. P. | | |
| Over 1,000 H. P. and under 2,000 H. P. | | |
| 2,000 H. P. and over | | |
| 3. Gas engines | | |
| 4. Boilers | | |
| 5. Auxiliary engines for use within plant as accessories, etc | | |

27. ELECTRICAL GENERATORS.

| | Number. | Total capacity in horse-power. | Voltage. |
|---|---|---|---|
| 1. Direct current: | | | |
| Dynamos—Under 500 H. P. | | | |
| Over 500 H. P. and under 1,000 H. P. | | | |
| Over 1,000 H. P. and under 2,000 H. P. | | | |
| 2,000 H. P. and over | | | |
| 2. Alternating current: | | | |
| Dynamos.....phase— | | | |
| Under 500 H. P. | | | |
| Over 500 H. P. and under 1,000 H. P. | | | |
| Over 1,000 H. P. and under 2,000 H. P. | | | |
| 2,000 H. P. and over | | | |
| 3. Transformers | | | |
| 4. Storage battery, cells | | | |
| 5. Boosters for outside feeders | | | |
| 6. Auxiliary generators for use within plant | | | |
| 7. Rotaries | | | |

28. SUBSTATION EQUIPMENT.

| | Number. | Total capacity in horse-power. | Voltage. |
|---|---|---|---|
| 1. Rotary converters, etc. | | | |
| 2. Transformers | | | |
| 3. Storage battery, cells | | | |
| Miscellaneous | | | |
| Electric motors used in plant or substation for miscellaneous work: | | | |
| 1. Direct current | | | |
| 2. Alternating | | | |

29. MAINS AND FEEDERS.

Miles of overhead feeder construction

Miles of underground feeder construction

30. OUTPUT OF STATION.

Kilowatt hour, average per day

Kilowatt hour, total for year

Horsepower of current, average per day

Horsepower of current, total for year

31. CONSTRUCTION AND EQUIPMENT.

| | Cost during the year. | Cost to date. |
|---|---|---|
| 1. Organization | $ | $ |
| 2. Engineering and superintendence | | |
| 3. Right of way | | |
| 4. Track and roadway construction | | |
| 5. Electric line construction | | |
| 6. Real estate used in operation of road | | |
| 7. Buildings and fixtures used in operation of road | | |
| 8. Investment real estate | | |
| 9. Power plant equipment | | |
| 10. Shop tools and machinery | | |
| 11. Cars | | |
| 12. Electric equipment of cars | | |
| 13. Miscellaneous equipment | | |
| 14. Interest and discount | | |
| 15. Miscellaneous | | |
| Total | | |
| Electric light or power service | $ | $ |

Cost of road and equipment per mile of road owned $

REMARKS.

.....

32. OPERATING EXPENSES.

| | | |
|---|---|---|
| Maintenance: | | |
| Ways and structures— | | |
| 1. Maintenance of track and roadway | $..... | |
| 2. Maintenance of electric, cable, etc., lines | ..... | |
| 3. Maintenance of buildings and fixtures | ..... | |
| Total | ..... | $..... |
| Equipment— | | |
| 4. Maintenance of steam plant | ..... | |
| 5. Maintenance of electric, cable, etc., plant | ..... | |
| 6. Maintenance of cars | ..... | |
| 7. Maintenance of electric, cable, etc., equipment of cars | ..... | |
| 8. Maintenance of miscellaneous equipment | ..... | |
| 9. Miscellaneous shop expenses | ..... | |
| Total | ..... | ..... |
| Transportation: | | |
| Operation of power plant— | | |
| 10. Power plant wages | ..... | |
| 11. Fuel for power | ..... | |
| 12. Water for power | ..... | |
| 13. Lubricants and wastes for power plant | ..... | |
| 14. Miscellaneous supplies and expenses of power plant | ..... | |
| 15. Hired power | ..... | |
| Total | ..... | ..... |
| Operation of cars— | | |
| 16. Superintendence of transportation | ..... | |
| 17. Wages of conductors | ..... | |
| 18. Wages of motormen | ..... | |
| 19. Wages of other car service employees | ..... | |
| 20. Wages of car house employees | ..... | |
| 21. Car service supplies | ..... | |
| 22. Miscellaneous car service expenses | ..... | |
| 23. Cleaning and sanding track | ..... | |
| 24. Removal of snow and ice | ..... | |
| Total | ..... | ..... |
| General— | | |
| 25. Salaries of general officers | ..... | |
| 26. Salaries of clerks | ..... | |
| 27. Printing and stationery | ..... | |
| 28. Miscellaneous office expenses | ..... | |
| 29. Storeroom expenses | ..... | |
| 30. Stable expenses | ..... | |
| 31. Advertising and attractions | ..... | |
| 32. Miscellaneous general expenses | ..... | |
| 33. Damages | ..... | |
| 34. Legal expenses in connection with damages | ..... | |
| 35. Other legal expenses | ..... | |
| 36. Rent of land and buildings | ..... | |
| 37. Rent of track and terminals | ..... | |
| 38. Insurance | ..... | |
| Total | ..... | ..... |
| Grand total | ..... | ..... |

Wages, supplies, and expenses, incidental and electric service not included in any other of the above items[1] ..... $.....

[1] For roads that sell light or power.

33. INCOME ACCOUNT.

INCOME.

| | |
|---|---|
| Passengers | $..... |
| Chartered cars | ..... |
| Freight | ..... |
| Mail | ..... |
| Express | ..... |
| Sale of electric current for light or power | ..... |
| Miscellaneous | ..... |
| Total | ..... |

EXPENSES.

| | | |
|---|---|---|
| Total operating expenses | ..... | $..... |
| Taxes: | | |
| Real and personal property | $..... | |
| Capital stock | ..... | |
| Earnings | ..... | |
| Miscellaneous (specifying same) | ..... | ..... |
| Interest: | | |
| Funded debt | ..... | |
| Real estate mortgages | ..... | |
| Floating debt | ..... | ..... |
| Rent of leased lines and terminals | ..... | ..... |
| Miscellaneous | ..... | ..... |
| Total | ..... | ..... |

Net income ..... $.....

34. BALANCE SHEET.

| ASSETS. | | LIABILITIES. | |
|---|---|---|---|
| Kind. | Amount. | Kind. | Amount. |
| Cost of construction and real estate. | $..... | Capital stock | $..... |
| Cost of equipment | ..... | Funded debt | ..... |
| Other permanent investments. | ..... | Bills payable | ..... |
| Cash on hand | ..... | Interest due | ..... |
| Bills receivable | ..... | Dividends due | ..... |
| Supplies | ..... | Sundries | ..... |
| Sundries | ..... | ..... | ..... |
| Total | ..... | Total | ..... |

35. CAPITAL STOCK.

| | COMMON. | | PREFERRED. | | DIVIDENDS DURING YEAR. | |
|---|---|---|---|---|---|---|
| | Number of shares. | Total par value. | Number of shares. | Total par value. | Rate. | Amount. |
| Authorized | ..... | ..... | ..... | ..... | ..... | ..... |
| Issued | ..... | ..... | ..... | ..... | ..... | ..... |

Total number of stockholders, .....

36. FUNDED DEBT.

Amount authorized ..... $.....

Amount outstanding ..... $.....

Rates of interest, ..... per cent.

37. EMPLOYEES' SALARIES, WAGES, ETC.

| | Average number employed during the year. | Total amount paid in wages and salaries during the year. |
|---|---|---|
| General officers | | $ |
| Other officers (managers, superintendents, etc.) | | |
| Clerks | | |
| Foremen | | |
| Inspectors | | |
| Conductors | | |
| Motormen | | |
| Starters | | |
| Watchmen | | |
| Switchmen | | |
| Road and track men | | |
| Hostlers, stablemen, etc | | |
| Linemen | | |
| Engineers | | |
| Dynamo and switchboard men | | |
| Electricians | | |
| Firemen | | |
| Mechanics | | |
| Lamp trimmers | | |
| Other employees | | |
| Total | | |

38. NUMBER OF EMPLOYEES AT SPECIFIED DAILY RATES OF PAY.

| DAILY RATES OF PAY. | Conductors. | Motormen. | Foremen. | Inspectors. | Starters. | Watchmen. | Switchmen. | Road and track men. | Hostlers, stablemen, etc. | Linemen. | Engineers. | Dynamo and switchboard men. | Electricians. | Firemen. | Mechanics. | Lamp trimmers. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $0.75 | | | | | | | | | | | | | | | | |
| 1.00 | | | | | | | | | | | | | | | | |
| 1.25 | | | | | | | | | | | | | | | | |
| 1.50 | | | | | | | | | | | | | | | | |
| 1.75 | | | | | | | | | | | | | | | | |
| 2.00 | | | | | | | | | | | | | | | | |
| 2.25 | | | | | | | | | | | | | | | | |
| 2.50 | | | | | | | | | | | | | | | | |
| 2.75 | | | | | | | | | | | | | | | | |
| 3.00 | | | | | | | | | | | | | | | | |
| 3.25 | | | | | | | | | | | | | | | | |
| 3.50 | | | | | | | | | | | | | | | | |
| 3.75 | | | | | | | | | | | | | | | | |
| 4.00 | | | | | | | | | | | | | | | | |
| 4.25 | | | | | | | | | | | | | | | | |
| 4.50 | | | | | | | | | | | | | | | | |
| OTHER DAILY RATES. | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| RATES PER HOUR FOR OVERTIME. | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

# APPENDIX B.

## INSTRUCTIONS TO SPECIAL AGENTS.

Reports must be secured on Special Schedule No. 1 (Form 8–120) for all street railways that were in existence during any portion of the year ending June 30, 1902. Roads operated in rural as well as urban districts must be reported.

The schedule is prepared primarily for roads operated by electricity, as the greatest number and most important street railways have adopted this form of motive power. In cases where the road was operated in whole or in part by cable, animal, steam, or motive power other than electricity, answers must be made to all of the inquiries that are applicable, the words "animal," "steam," etc., being added by the agent to the different inquiries when necessary. For instance, Inquiry 31 calls for the cost of "electric line construction" and "electric equipment of cars;" in the report for a road operated by cable these inquiries should be changed to "cable line construction" and "cable equipment of cars," respectively.

In a number of instances independent street railway companies have recently been combined under one ownership. In such cases one report may be made for the operations of the entire company, provided the roads which were formerly operated as independent lines are located in the same city or immediate vicinity, but if the system of accounting will permit of the preparation of separate schedules, a separate report should be secured for each of the constituent companies. In preparing separate reports for subsidiary companies the name and address of the controlling company must be given in answer to Inquiry 5.

In addition to information as to railways, or portions of railways, that are in operation, the report should include the statistics for all additions or extensions during the year.

If a street railway is owned by a company whose general office is in another locality outside the territory assigned the agent, and a portion of the information must be obtained from such office, the agent should complete the schedule as far as possible from the data obtainable at the plant and forward it to the Census Office with a full statement of the facts, giving also the names and addresses of the persons from whom further information may be obtained.

Each agent will be furnished with a list giving the names and addresses of all street railways located in the territory assigned him, which were in existence, building, or chartered during the year ending June 30, 1902. He will be required to secure a report from each of these railroad companies provided the railroad plant was in operation, had been completed and ready for operation, or was in course of construction. Returns must not be secured for companies which had been chartered but which had not commenced the construction of the road. The fact that a railroad is contemplated or projected, but not necessarily building or in operation, is designated on the list as "proposed."

This list has been prepared from street railway directories and it may not contain the names of all street railways, therefore the agents must be constantly on the alert to discover other roads. They should make inquiry in each city or town they may visit for roads in that vicinity. If such roads are discovered and they are located in the territory assigned the agent he should proceed to secure the returns for the same.

The different cities must be visited in the order named on the list, unless the agent finds that railroad connections and local conditions make a change advisable. In such cases the character and necessity for the change must be given on the agent's daily report.

In all cases where an annual report of the railway is printed, a copy of the latest report should be secured and forwarded with the schedule. Copies should also be returned of printed tariff rates, reports of the directors or officers of the road, or other printed matter that would add to the information contained in the schedule.

A number of street railway companies generate electricity for sale to other roads, or for light, power, or other purposes. If, in such cases, the system of accounts used by the company will permit the preparation of separate and complete reports for the street railway plant and the electric light and power plant, respectively, the separate reports must be obtained. If the system of accounts will not permit of such a separation, one report should be secured for the entire plant, but in such cases a report must also be made on the schedule (Form 8–122) for electric light and power, and answers given to questions from 1 to 9, inclusive, and 15 to 29, inclusive, or such of them as are applicable to the plant reported.

All answers must be made clearly and neatly in ink. Amounts and values must be obtained from book accounts, if such accounts are available. Each question is to be answered. If any question is found not applicable and no amounts are reported, write the word "None."

An exact answer to each item enumerated in the several questions is what is required, and is what should be given if it can be secured with a reasonable amount of labor. It is anticipated, however, that in a number of plants the accounts are not kept under just such a series of items as has been enumerated. If the accounts cover two or more of the items enumerated for any of the inquiries, the total should be equitably apportioned for the reply to each subinquiry. In all cases where the answers are estimated the amounts must be preceded by the word "Estimate."

The cover of the schedule must be left blank, as the name of the company will be supplied after the receipt of the report at the Census Office.

Give on page 1 the name and location of the company, the address of the general offices, and the signature and official designation of the persons furnishing the information. If the address of the general or business office is at a different place from that of the plant, care must be taken to give both. The exact time covered by the report must be shown in the certificate.

Of the first 14 inquiries special attention is called to the following: 1. The date given must be the date of the charter under which the company reporting was organized and not the date of the original organization of the road unless the dates are the same. 7. Each change in the character of motive power must be described and the date given. If the change was only partial, the road being operated by two or more kinds of power, that fact must be noted. 10. The length of streets or roads over which cars are run must include length of track over fields or regions where there is no road or street. 12. Account in single track mileage, for the entire

length of the road operated by the company, including leased lines and lines operated under trackage rights. Separately report in answer to Inquiry 12 the number of miles of railway constructed but not in operation. 14. Give the number of years for which the franchises or amendments thereto were granted, and the date each expires.

INQUIRY 15.—ACCIDENTS.

In the return of killed or injured, "other persons" is meant to refer to foot passengers or persons riding in vehicles other than street cars that are in collision with the cars.

INQUIRY 16.—TRAFFIC, MILEAGE, AND MISCELLANEOUS STATISTICS.

*Transfer passengers.*—Many street railways voluntarily, or when required by law, give free tranfers to passengers paying one fare, and desiring to ride over more than one line. These transfers are generally issued in the shape of tickets at junction transfer points, and sometimes the passengers step from one car to the other, without such tickets, under the eye of the transfer agent; and in this manner a continuous ride can be made over more than one road for the one fare. Careful count or estimate of transfers is made by all the roads granting them.

*Passenger-car mileage.*—It is an ordinary practice for street railways to keep an account of this mileage. Where it is not known, it can be arrived at by multiplying the average or actual number of cars in daily service by the number of miles run daily for the year. The other inquiry, "Passenger-car hours," is not obligatory, but is a new method of accounting for car operation and is already employed by some roads. Such roads, however, are large and the system of accounts is likely also to include the older and more familiar "Passenger-car mile." In many cases the mileage of other classes of service, such as freight, etc., will be a matter of estimate.

*Maximum speed, etc.*—The speed of street cars is almost universally regulated by specific law or ordinance, and the answer to the questions on speed within the city limits, will presumably be the limits which are thus enforced. When possible give the maximum speed within and outside the city limits.

*Telephone lines for operation of roads.*—Many street railways have their own regular car dispatching system, which is aided and supplemented by a telephone service belonging to the road, the wires being strung along the line. Other roads that may not have dispatchers place telephone boxes on their poles to enable communication between any conductor and headquarters. All of this service is independent of the local telephone system used by the public and furnished from a local exchange; and the inquiry does not include the instruments or lines that the street railway company may hire from the telephone company as a subscriber.

*Stations.*—By "stations" is meant separate buildings or public shelters at which passengers wait to take cars, pay fares, or secure transfers; and usually the transfer points will be much more numerous than the stations. The word is not intended to include, in any way, stopping points or open-air stations along a line where passengers can mount and dismount, and which are often designated by a sign to that effect placed on an adjacent pole.

*Horses.*—Give the total number of horses owned and used in any capacity in connection with the road.

*Parks, pleasure resorts.*—These are a feature of modern street railway business and often a large source of income. They have frequently been created by the companies themselves on their lines, and the data should be readily obtainable in every case. The agent must not, however, include in the return parks and pleasure grounds belonging to the community and entered by street railway systems; but if the company pays for the privilege of touching at these points a memorandum should be made of that fact, and the number of passengers thus specifically delivered within such pleasure resorts should be noted, if possible, as distinguished from traffic on lines terminating outside public parks or running around them.

INQUIRY 17.—TRACK.

The entire length of all track operated must be reported. The total mileage of first and second track must agree with the totals given in answer to Inquiry 12.

"Single track" means one set of rails in any thoroughfare. "Second track" means another pair of rails running alongside the first, so that cars can pass each other in opposite directions. Even in some of the largest cities there will be but one track in one street, the return route running parallel on another street nearby. On the other hand, there are streets that have three and four street railway tracks in them. It is desired to secure these details itemized, so that when the second track, and the length of sidings and turn-outs, is added to the single track, there will appear the total mileage of track owned by each road. At the same time, the return will then exhibit the proportion or extent to which single tracks and double tracks occupy the streets.

*Right of way.*—This term applies practically to rural electric railways, many of which have bought or have had surrendered to them a separate roadbed, either adjoining the highway or running across lots, in the same manner as a steam railroad. Occasionally the railway will not own the private right of way over which it runs, an instance of which would be a toll bridge owned by a bridge company to whom payment for the privilege is made.

*Number of miles within city or municipal ordinance limits.*—The object of this inquiry is to ascertain the miles of track within the incorporated limits of the different cities in which the road is located.

INQUIRY 18.—ELECTRIC LINE CONSTRUCTION.

In only one or two places will the agent find "double overhead" trolleys. The universal American practice is "single overhead" trolleys. In the former there are two trolley pole contacts above the car, by one of which the current flows into the car motors and by the other of which it flows out, or "completes the circuit." In this manner the track is not electrified. With the single overhead system, the current is led to the motors by the single overhead contact wheel and pole, and then the circuit is completed through the wheels and the track, the rails of which are all welded together or else are united into one continuous circuit by "rail bonds," i. e., usually pieces of copper fixed at each rail joint, and the whole network being connected to the dynamos at the generating power plant. The overhead trolley wire is held up between two sets of poles and sustained by "span wires," or it is held up by "center poles" placed in the middle of the thoroughfare and supporting a trolley wire on either side, above each track; or it is held up by side poles with "brackets." Iron or steel or wooden poles are usually used.

INQUIRY 19.—CARS, ETC.

Every street railway company keeps a close account of its rolling stock, and, though there are many varieties, they will all fall under the headings enumerated. Some cars, however, serve for more purposes than one, and these must not be counted twice. Closed cars or open cars that carry material and mail as well as passengers must be enumerated once only, as closed cars or as open cars; and a mail car that carries express and freight, or vice versa, must be treated only as a mail car or as an express car. The headings "mail," "express and freight," etc., designate cars that are solely and specifically devoted to such several uses. "Snowplows" and "sweepers" are often a composite vehicle, and in such cases must be counted only once, under either head.

INQUIRY 20.—FENDERS AND BRAKES.

The fender is usually a removable piece of apparatus, and where all the cars of a road are so equipped that fenders can be put on them when they are run out of the car barn for service, they should all be enumerated as equipped with fenders. If a car has no

fender attachments, it should not be counted here. "Brakes" are a permanent fixture on any car, and in the majority of instances will be of the ordinary "hand" kind. "Air" brakes are set by air compression mechanism and comprise those in which electric motors drive the air pumps. A few cars have "electric brakes," which are in reality "magnetic," and are often so called, a metallic cheek being clutched magnetically against the face of the wheel so as to arrest its motion. A track brake is one which engages with the track and not with the wheel, and may be of an electric character; but in the latter case it should be included under the electric class and a memorandum attached noting this fact.

### Inquiry 21.—Heating of Cars.

Give the number of cars heated by the different methods enumerated.

### Inquiry 22.—Lighting of Cars.

Account for the total number of passenger cars, giving separately the number lighted by electricity, gas, and oil, respectively.

### Inquiry 23.—Weight of Rails.

Give the maximum and minimum weight per yard of the steel rails in use at the time of making the report. It is likely that many street railway systems will have more than one weight of rail; the heaviest being used in cities, the lightest in the outskirts or where supported on ties and sleepers. If possible the style of rail should be noted, as indicated in the schedule. The agent may be informed of the existence of some iron rail, but this should be disregarded, as such rail has virtually gone out of manufacture and use.

### Inquiry 24.—Conduit System for Distribution.

This is intended to cover only conduit systems employed by the street railway company itself for the reception of its mains and feeders, it being required in many towns and cities that these go off the poles and be put underground. It is desired to ascertain how far the streets have been relieved by conduit systems of such obstructions, and the facts are readily obtainable. The return is asked for in "miles of duct," this meaning miles of separate pipeway, each pipeway receiving one cable or wire. Underground conduit is usually manufactured so that when laid under the street it presents several ducts or holes to be filled with electric cable for carrying current. One mile of street laid with conduit of six holes would thus represent 6 miles of duct. In cases where the feeders are inclosed in the conduit of underground trolley systems, note that fact and give the miles of conduit in which the feeder is carried.

### Inquiry 25.—Bridges Built for Road.

The object of this inquiry is to ascertain the number, character, and length of the bridges built by or for the use of the road. Do not account for the bridges over which the road has obtained the privilege of laying its tracks, but which were not built primarily for that purpose. The inquiry applies particularly to roads operated in rural districts.

### Inquiry 26.—Power Plant Equipment.

These are details that should in every instance be readily obtainable. If the manager or superintendent does not know the capacity of his boilers, he will probably know that of his engine, or of his dynamo, and all are closely related. The boiler capacity is almost invariably installed larger than the engine requires, and the engine has always a margin of more power than the dynamo calls for. Thus a dynamo of 150 horsepower will be driven by an engine of 175 horsepower, and the engine will be supplied with steam from a boiler that can furnish 200 horsepower. "Auxiliary engines" will sometimes be found in small railways, but in the larger plants they or electric motors are in common use to drive pumps, etc., and the superintendent or manager can readily enumerate them.

### Inquiry 27.—Electrical Generators.

At the period covered by this inquiry every electric railway in the United States is operated by direct current motors, and current to those motors is furnished either by direct current generators (i. e., dynamos) or by "converters" which take alternating current from large alternating polyphase generators and convert it into direct current for consumption at the cars. There will be no difficulty in ascertaining the facts as to these different classes of apparatus, as only the larger systems employ alternating current for widespread distribution, and then usually in connection with substations, to which such current is delivered to be passed through transformers and converters so that it may be adapted for use by the direct current motors. Storage batteries are used, either in the main power plants or in the substations, to help maintain a steady supply of current at the right pressure, and "boosters" are dynamos assisting to the same end. The substation is particularly a feature of long distance rural electric railway work, but in every instance such roads have competent engineers, who can give the data should it not be in possession of the management.

### Inquiry 28.—Substation Equipment.

The feature of substation equipment is that it does not generate current, but receives it, manipulates it, stores it, and lowers the pressure or changes the form for local consumption. All the generating plants will usually be found in the generating stations, but sometimes substation apparatus will be found under the same roof as the generating main plant apparatus.

### Inquiry 29.—Mains and Feeders.

This inquiry does not mean the wire with which the trolley wheel makes contact, but has reference to the heavy circuits which bring current to feed the conductor. These mains and feeders in some places are still carried on poles, and are tapped at numerous points so that the current can be fed into the service conductor; but it is a rapidly growing practice to relieve the poles of their burden and to get them underground out of the way.

### Inquiry 30.—Output of Station.

This is an inquiry in regard to which some roads may have no data, although in many of them it is a matter of careful scientific accounting. In every case, the volts multiplied by the amperes will give the number of watts. A kilowatt is 1,000 watts. There are 746 watts in the old familiar horsepower, so that a kilowatt is roughly 1⅓ horsepower. Watt hours are the product of watts multiplied by the number of hours during which the current is in use. Thus a power house with a dynamo delivering current to the line of 1,000 amperes at 550 volts pressure is generating 550,000 watts, or 550 kilowatts. If these 550,000 watts are furnished on an average twenty hours daily, we get 11,000,000 watt hours or 11,000 kilowatt hours. The total for the year can be arrived at from the daily total, and the horsepower of current can be figured from the kilowattage, or vice versa, by the simple calculation above given.

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To facilitate the answers to the inquiries concerning financial operations, the Office has adopted the system of accounting devised by the Street Railway Accountants' Association of America and approved and recommended by the National Association of Railroad Commissioners. It is presumed that all street railway companies are familiar with this system of accounting, but the following instructions in regard to the items to be included in the answer to each inquiry are given to assist in their compilation:

In the following classification, "Labor" should be understood to mean, not only the manual work of laborers, but also superintendence, supervision, clerical work, engineering, and inspection, so far as they are chargeable to the account referred to.

"Material" should be understood to mean, not only finished or

unfinished products, appliances, or parts, but such smaller articles as are usually termed "supplies."

"Tools" should be understood to mean hand tools of mechanics and other tools used in the work chargeable to the account referred to.

"Expenses" should be understood to mean all expenses chargeable to the account referred to, that are not labor, material, or tools.

The cost of replacement, renewal, or repair of property destroyed or injured by fire, worn out, or otherwise unfitted for use, should be charged to the appropriate maintenance account, which should be credited with the amount received for insurance or realized from the sale of property so unfitted for use. But if the property substituted is of greater value than the original property, the excess should be charged to the capital or construction account to which the original property was charged; if of less value, the difference between the value of the property as repaired, renewed, or replaced, and its original cost or value should be credited to the capital or construction account to which the first cost was charged. So proceeds from the sale of scrap material should be credited to the account to which the cost of replacement of that material is charged, or, if not replaced, to the original cost account.

The cost of experiments should be charged in operating expenses to the account most affected.

### Inquiry 31.—Construction and Equipment.

In cases where the road was purchased, or constructed under a contract, a lump sum being paid for the entire plant, it may be impossible to obtain separate amounts for each of the items specified. The total cost should then be ascertained and a careful segregation made which must be approved by the person furnishing the information.

1. *Organization.*—All expenses incurred in effecting organization, including legal expenses.

2. *Engineering and superintendence.*—All expenditures for services of engineers, draftsmen, and superintendents employed on preliminary and construction work, and all expenses incident to the work.

3. *Right of way.*—All expenditures in connection with securing or paying for right of way, including cost of real estate for right of way.

4. *Track and roadway construction.*—All expenditures for track and roadway construction, including labor, materials, tools, freight, hauling, distribution of material, and all other expenses incident to the work; cost of grading, excavating, track laying, ties, yokes, slot rails, manhole frames and covers, rails, rail fastenings, welded joints, special work (such as crossings, cross-overs, curves, frogs, guard rails, run-offs, switches, switch mates, turn-outs), ballasting, paving, fences (right of way), bridges and culverts, trestles, subways, and tunnels.

The cost of tracks in yards, terminals, car houses, or other buildings should be charged to this account.

The cost of punching and drilling rails for track wiring should be charged to account 5.

5. *Electric line construction.*—All expenditures for overhead, underground, third-rail, or surface contact electric line construction, including labor, material, tools, freight, hauling, distribution of material, and all other expenses incident to the work; cost of punching and drilling rails for track wiring, rail bonds, poles (iron and wood), labor and material for setting and painting poles; feed wire, guard wire, span wire, strain wire, supplementary wire, trolley wire, ground feeders, underground feeders, pole fixtures, hangers or suspensions, insulators (overhead), lightning arresters and appliances, signals and signaling apparatus, overhead crossings and switches, ground terminals, and all labor in connection with putting same in position; conduits and conduit appliances for underground trolley construction, including conductors, insulators, sewer connections, sewer traps, and underground feeders; third rails, and insulators for third-rail construction; surface contact appliances for surface contact roads, including magnets, contact boxes, manhole frames and covers.

6. *Real estate used in operation of road.*—All expenditures for real estate used in operation of road, except real estate used for right of way, which should be charged to account 3.

7. *Buildings and fixtures used in operation of road.*—All expenditures for buildings and fixtures used in operation of road, including labor, material, tools, freight, hauling of material, and all other expenses incident to the work. The term "buildings and fixtures" includes power houses, car houses, shops, office buildings (when owned by the company), waiting rooms, sheds, outhouses, coal bins, sand houses, stables, storehouses, switch tenders' houses, fences (except park and right of way), docks, wharves, and all other buildings and inclosures, and their stationary fixtures, including pipes for gas, water, sewage, and drainage, apparatus for heating, lighting, and ventilating, sidewalks, and paving in streets in front of and adjacent to the company's buildings (except in tracks), and inspection and repair pits in car houses, shops, or other buildings. The cost of tracks in yards, terminals, car houses, and other buildings should be charged to account 4. The cost of electric line in yards, terminals, car houses, and other buildings should be charged to account 5.

8. *Investment real estate.*—All expenditures for land and buildings not used in operation of road.

9. *Power plant equipment.*—All expenditures for steam and electric equipment of power plant, including foundations and installation. The equipment of substations (if used) should be charged to this account. All expenditures for waterpower machinery (if used) should be charged to this account. The cost of buildings used for main power house or substations should be charged to account 7.

10. *Shop tools and machinery.*—All expenditures for shop tools and machinery for general repair shops, car houses, etc., including foundations and installation.

11. *Cars.*—All expenditures for passenger, baggage, express, freight, mail, and other cars from the operations of which revenue is derived. The term "cars" includes car bodies and trucks, and all fixtures or appliances inside of or attached to the car body or truck (except the electric equipment of the car).

12. *Electric equipment of cars.*—All expenditures for electric equipment and wiring of all cars, whether revenue cars or work cars, including labor, material, tools, freight, hauling of material, and all other expenses incident to the work.

13. *Miscellaneous equipment.*—All expenditures for water cars, sprinkling cars, sand cars, salt cars, supply cars, and other work cars; snowplows, sweepers, scrapers, and miscellaneous snow equipment; horses, harness, wagons, and vehicles; tools and appliances necessary in the use of work cars or snow equipment.

14. *Interest and discount.*—All interest paid or received in connection with funds for construction, and all discounts or premiums resulting from the negotiation of securities for construction, should be charged or credited to this account.

15. *Miscellaneous.*—All expenditures for printing and stationery, office supplies and expenses, damage claims, wages of clerks, and all other expenses incident to construction not otherwise provided for.

*Electric light and power service.*—Amounts are to be reported in answer to this inquiry when electric current is sold for light, power, or other purposes. Include all expenditures for electric plant, line construction, lamps, motors, etc., that have *not* been included in the other items which pertain to the construction and equipment of the railway plant and line.

### Inquiry 32.—Operating Expenses.

1. *Maintenance of track and roadway.*—All expenditures for repairs and renewals of track and roadway, of culverts and subways, of tracks in yards, terminals, car houses or other buildings, including labor, material, tools, fuel, light, water, ice, freight, hauling, and distribution of material, and all other expenses incident to the work.

The cost of taking up track, whether new track is laid in its place or not, should be charged to this account.

The cost of punching and drilling rails for repairs or renewals of track wiring, and of removing and relaying pavement, ballast, etc.,

when necessary for repairs or renewals of the electric line, should be charged to account No. 2.

The cost of repairs and renewals of harness and wagons used in connection with this work should be charged to account No. 8.

The cost of feed and keep of horses used in connection with this work should be charged to account No. 30.

Following is a list of some of the items chargeable to this account:

Ballast.
Bolts.
Braces, rail.
Brick.
Bridges.
Cement.
Chairs, for rails.
Cinders, for ballast.
Coke, for welding joints.
Clamps, for welded joints.
Crossings.
Cross-overs.
Culverts.
Curves.
Drains.
Fences, right of way.
Fish plates.
Freight.
Frogs.
Fuel.
Guard rails.
Gravel.
Hauling.
Ice, for ice water.
Iron.
Joints, welded.
Joints, not welded.
Labor.
Light (lanterns and fixtures, oil, lampwicks, torches, candles, incandescent lamps and fixtures, arc lights and fixtures, globes, and carbons).
Lumber.
Manhole covers, for underground trolley.
Manhole frames, for underground trolley.
Molds, for welded joints.
Nails.
Nuts.
Nut locks.
Paving materials.
Pig iron, for welded joints.
Pipes, drain.
Rails.
Run-offs.
Sand.
Screws.
Slot rails, for underground trolley.
Spikes.
Steel.
Stone.
Subways.
Switches.
Switch mates.
Ties.
Tie plates.
Tie rods.
Tools.
Trestles.
Tunnels.
Turn-outs.
Washers.
Water.
Yokes, for underground trolley.

2. *Maintenance of electric, cable, etc., lines.*—All expenditures for repairs and renewals of overhead, underground, third-rail, or surface contact electric lines, and cable line, including labor, material, and tools employed or used in taking up, resetting, and painting and repainting poles, taking down trolley, feed, guard, and supplementary wires, and substituting new, repairing and renewing conduits for wires, repairing and renewing bond wires, punching and drilling rails for track wiring, removing and relaying pavement, ballast, etc., when necessary for repairs or renewals of the line, freight, hauling and distribution of material, fuel, light, water, and ice, and all other expenses incident to the work.

The cost of repairs and renewals of electric lines in yards, terminals, car houses, or other buildings should be charged to this account.

The cost of feed and keep of horses used in connection with this work should be charged to account No. 30.

The cost of repairs and renewals of harness and wagons used in connection with this work should be charged to account No. 8.

Following is a list of some of the items chargeable to this account:

Bolts.
Boxes, for lightning arresters.
Cement.
Charcoal.
Clamps, for poles.
Conductors, for underground trolley.
Conduits.
Contacts, for surface contact roads.
Contact boxes, for surface contact roads.
Cord.
Cross arms, iron.
Cross arms, wood.
Crossings.
Feeders, ground.
Feeders, overhead.
Feeders, underground.
Freight.
Fuel.
Gasoline.
Hangers.
Hauling.
Ice, for ice water.
Insulators, overhead.
Insulators, underground.
Insulators, for third rail.
Iron.
Labor.
Light (lanterns and fixtures, oil, lampwick, torches, candles, incandescent lamps and fixtures, arc lights and fixtures, globes, and carbons).
Lightning arresters and parts.
Magnets, for surface contact roads.
Manhole covers, for surface contact roads.
Manhole frames, for surface contact roads.
Nuts.
Painting material, for poles.
Pins, iron, for cross arms.
Pins, wood, for cross arms.
Poles, iron.
Poles, wood.
Pole tops, for iron poles.
Rail bonds.
Sand.
Screws.
Sewer connections, for underground trolley.
Sewer traps, for underground trolley.
Signals and signaling apparatus.
Solder.
Soldering salts.
Steel.
Stone.
Suspensions.
Switches.
Tape, insulating.
Terminals.
Third rails.
Tools.
Washers.
Water.
Wire, feed.
Wire, guard.
Wire, span.
Wire, strain.
Wire, supplementary.
Wire, trolley.

3. *Maintenance of buildings and fixtures.*—All expenditures for repairs and renewals of buildings and fixtures used in the operation of the road, including labor, material, tools, freight, hauling of material, and all other expenses incident to the work.

The term "buildings and fixtures" includes power houses, car houses, shops, office buildings (when owned by the company), waiting rooms, sheds, outhouses, coal bins, sand houses, stables, storehouses, switch tenders' houses, fences (except park and right of way fences), docks, wharves, and all other buildings and inclosures, and their stationary fixtures, including pipes for gas, water, sewage, and drainage, apparatus for heating, lighting, and ventilating, sidewalks and pavements in front of and adjacent to the company's buildings (except in tracks), and inspection and repair pits in car houses, shops, or other buildings.

The cost of repairs and renewals of tracks in yards, terminals, car houses, or other buildings should be charged to account No. 1.

The cost of repairs and renewals of electric lines in yards, terminals, car houses, or other buildings should be charged to account No. 2.

Following is a list of some of the items chargeable to this account:

Awnings.
Bolts.
Bolt ends.
Brick.
Builders' hardware.
Building material.
Building permits.
Cement.
Cisterns.
Drains.
Excavations.
Fences (except park and right of way).
Foundations.
Freight.
Grading.
Hauling.
Heating apparatus and fixtures.
I-beams.
Iron.
Labor.
Laths.
Lighting apparatus and fixtures.
Lime.
Lumber.
Nails.
Nuts.
Painting materials (oil, turpentine, varnish, lead, painters' supplies).
Paving in streets (except in connection with tracks).
Plaster.
Pipes, drain.
Pipes, gas.
Pipes, sewer.
Pipes, water.
Pits in car houses and shops.
Plumbing.
Rivets.
Roofing material.
Sand.
Sash cord.
Sash weights.
Scales, platform.
Screws.
Sewering.
Shelving and other fixtures.
Shingles.
Sidewalks.
Slate.
Spikes.
Steel.
Stone.
Tools.
Tile.
Turn-buckles.
Ventilating apparatus and fixtures.
Washers.
Water.
Water connections.
Water meters.
Wells.
Wire.

4. *Maintenance of steam plant.*—All expenditures for labor, material, tools, freight, hauling of material, and all other expenses incident to repairs and renewals of steam plant or waterpower plant, including engines and engine parts, appliances and fixtures, belts, belt tighteners and fixtures, receivers, lubricators, and oiling devices; shafting, clutches, cranes, hoists, and other engine room appliances; boilers, boiler fittings and appliances; furnaces, economizers, stacks, mechanical draft machinery, pumps, feed water heaters, purifiers, tanks, condensers, coal and ash conveying machinery, mechanical stokers, and other boiler room appliances; piping and steam fitting, including valves, separators, water and sewer connections, and water meters.

Following is a list of some of the items chargeable to this account:

Ash conveying machinery.
Belts.
Belt fixtures.
Belt tighteners.
Boilers.
Boiler appliances.
Boiler fittings.
Bolts.
Cement.
Clutches.
Coal conveying machinery.
Condensers.
Cranes.
Draft machinery.
Economizers.
Engines.
Engine appliances.
Engine fixtures.
Engine parts.
Fire brick.
Fire clay.
Freight.
Furnaces.
Grate bars.
Hauling.
Heaters, feed water.
Hoists.
Injectors.
Iron.
Labor.
Lubricators.
Oiling devices.
Piping.
Pipe covering.
Pipe fittings.
Pulleys.
Pumps.
Purifiers.
Receivers.
Screws.
Separators.
Sewer connections.
Shafting.
Stacks.
Steam fittings.
Steel.
Stokers, mechanical.
Tanks.
Tools.
Water connections.
Water meters.
Waterpower machinery.

5. *Maintenance of electric, cable, etc., plant.*—All expenditures for labor, materials, tools, freight, hauling of material, and all other expenses incident to repairs and renewals of plant, including generators and generator parts, switchboards, cables, and feeder terminals and wiring in connection with same, storage batteries, transformers, boosters, rheostats, circuit breakers, ammeters, and other electric equipment.

Commutator brushes for generators should be charged to account No. 14.

Following is a list of some of the items chargeable to this account:

Ammeters.
Boosters.
Cables.
Circuit breakers.
Feeder terminals.
Freight.
Generators.
Generator parts.
Hauling.
Labor.
Lightning arresters and parts.
Rheostats.
Storage batteries.
Switchboards.
Switches.
Tools.
Transformers.

6. *Maintenance of cars.*—All expenditures for repairs and renewals of passenger, baggage, express, freight, mail, and other cars from the operation of which revenue is derived, including labor, material, tools, freight, hauling of material, and all other expenses incident to the work.

The term "cars" includes car bodies and trucks and all fixtures or appliances inside of or attached to the car body or truck, except the electric equipment of the car.

The cost of cars purchased to keep good the original number of cars should be charged to this account.

Bell and register cord, trolley rope, incandescent lamps, commutator brushes, and other supplies for cars should be charged to account No. 21.

Following is a list of some of the items chargeable to this account:

Axles.
Bells.
Bell cord fixtures.
Bolts.
Brakes (hand or power).
Brake appliances (hand or power).
Brake shoes.
Brasses.
Brass fixtures.
Brass trimmings.
Bumpers.
Canvas.
Cotters.
Curtains.
Curtain fixtures.
Dashes and parts.
Drawbars.
Electric heaters.
Electroliers.
Fare registers.
Fenders and parts.
Floor mats.
Freight.
Gates.
Glass.
Gongs.
Grab handles.
Hauling.
Headlights and parts.
Iron.
Labor.
Life guards.
Lumber.
Mirrors.
Nails.
Nuts.
Oil boxes.
Painting material.
Pedestals.
Pilots.
Sand boxes, attached to cars.
Screws.
Seats.
Seat covering.
Seat fixtures.
Signs.
Sign fixtures.
Snow scrapers, attached to cars.
Springs.
Steel.
Steps.
Stoves.
Stove fixtures.
Tools.
Trucks.
Truck frames and parts.
Washers.
Wheels.
Woodwork.

7. *Maintenance of electric, cable, equipment of cars.*—All expenditures for repairs and renewals of the electric or cable equipment and wiring of cars, whether revenue cars or work cars, including labor, material, tools, freight, hauling of material, and other expenses incident to the work.

The cost of shifting electric equipments from summer to winter cars, or vice versa, should be charged to this account.

The cost of equipments purchased to keep good the original number of equipments should be charged to this account.

The cost of commutator brushes, incandescent lamps, oil, and other supplies for the electric equipment of cars should be charged to account No. 21.

Following is a list of some of the items chargeable to this account:

Armatures and parts.
Bearings.
Bolts.
Brasses, armature, axle, gear case.
Brush holders and parts.
Canvas.
Circuits, for heat, light, power.
Circuit breakers, automatic.
Commutators and parts.
Contact shoes for surface contact cars.
Contact shoes for third rail cars.
Controllers and parts.
Cotters.
Cut-out boxes and parts.
Fields and parts.
Frames, for motors.
Freight.
Gears.
Gear cases and parts.
Hauling.
Heat circuits.
Insulating material.
Iron.
Labor.
Light circuits.
Lightning arresters and parts.
Motor frames.
Nuts.
Pinions.
Plows, for underground trolley cars.
Power circuits.
Rheostats.
Screws.
Shafts.
Springs.
Steel.
Storage batteries, for storage battery cars.
Tape.
Terminals.
Tools.
Trolley bases.
Trolley forks.
Trolley poles.
Trolley wheels and parts.
Washers.
Wiring.

8. *Maintenance of miscellaneous equipment.*—All expenditures for repairs and renewals of water cars, sprinkling cars, sand cars, salt cars, supply cars, other work cars, snowplows, sweepers, scrapers, miscellaneous snow equipment, wagons, and all other vehicles not operated for the purpose of revenue, including labor, material, tools, freight, hauling of material, and all other expenses incident to the work.

Replacing horses lost by death or worn out in the service, depreciation in value of horses, and repairs and renewals of all harness and vehicles should be charged to this account.

Repairs and renewals of the electric equipment of all work cars, snowplows, sweepers, etc., should be charged to account No. 7.

Following is a list of some of the items chargeable to this account:

Axles.
Bolts.
Brakes (hand or power).
Brake appliances (hand or power).
Brake shoes.
Brasses.
Brass fixtures.
Bumpers.
Canvas.
Cotters.
Dashes and parts.
Drawbars.
Electroliers.
Fenders and parts.
Freight.
Glass.
Gongs.
Grab handles.
Hauling.
Headlights and parts.
Iron.
Labor.
Life guards.
Lumber.
Nails.
Nuts.
Oil boxes.
Painting material.
Pedestals.
Pilots.
Rattan, for sweepers.
Sand boxes, attached to work cars.
Screws.
Snow scrapers, attached to work cars.
Springs.
Steel.
Tools.
Trucks.
Truck frames and parts.
Washers.
Wheels.
Woodwork.

9. *Miscellaneous shop expenses.*—All expenditures for repairs and renewals of shop tools, machinery, and appliances, such as engines, boilers, shafting, motors, etc., used in general repair work, including labor, tools, coal, coke, lubricants, waste, and other material, freight, hauling of material, fuel, light, water and ice, wages of master mechanic, shop foreman, engineers, firemen, and other employees engaged in operating shop engine, and all other expenses incident to the general repair shops.

Hand tools of mechanics or laborers used exclusively in connection with work chargeable to accounts Nos. 1 to 8, 14, 21, and 22 should not be charged to this account, but to the account benefited by their use.

Following is a list of some of the items chargeable to this account:

Belts and belt fixtures.
Boilers and boiler fittings.
Bolts.
Brooms.
Charcoal.
Clutches.
Coal.
Coke.
Cotters.
Cranes.
Draft machinery.
Engines and parts.
Engine appliances and fixtures.
Fire brick.
Fire clay.
Forges.
Freight.
Fuel.
Furnaces and parts.
Hauling.
Heaters, feed water.
Hoists.
Ice, for ice water.
Iron.
Labor.
Light (lanterns and fixtures, oil, lampwicks, torches, candles, incandescent lamps, arc light globes, and carbons).
Lubricants.
Lumber.
Motors and parts (for shop use only).
Nails.
Nuts.
Piping.
Pipe covering.
Pipe fittings.
Pulleys.
Pumps.
Screws.
Shafting.
Stacks.
Steam fittings.
Steel.
Tools, machine.
Tools, hand.
Washers.
Waste.
Water.
Welding compounds.

10. *Power plant wages.*—All expenditures for labor in the power plant, except labor employed in making repairs or renewals.

This includes the wages of the following employees:

Boiler cleaners.
Chief engineer.
Engineers.
Firemen.
Coal passers.
Generator tenders.
Oilers.
Other labor (boiler room).
Other labor (engine room).
Switchboard tenders.
Water tenders.

11. *Fuel for power.*—All expenditures for coal, oil, or gas used as fuel, or other fuel used at power plant, including freight and hauling.

12. *Water for power.*—All expenditures for water used to produce steam or to operate a waterpower plant.

13. *Lubricants and waste for power plant.*—All expenditures for lubrication of power plant, including oil, grease, waste, rags, etc.

14. *Miscellaneous supplies and expenses of power plant.*—All expenditures for operation of power plant not otherwise provided for.

Following is a list of some of the items chargeable to this account:

Boiler compound.
Boiler inspection.
Brooms.
Brushes, flue.
Brushes, for generators.
Brushes, for scrubbing.
Buckets.
Chamois skins.
Dusters.
Emery cloth.
Fire buckets.
Fire extinguishers.
Garnet paper.
Hose.
Ice, for ice water.
Light (lanterns and fixtures, oil, lampwicks, torches, candles, incandescent lamps, arc light globes and carbons).
Matches.
Mops.
Oil cans.
Packing.
Polish.
Sandpaper.
Soap.
Sponges.
Sprinkling cans.
Tools.
Water (except water charged in account No. 12).
Water gauge glasses.
Waste cans.

15. *Hired power.*—All expenditures for power purchased from other companies or power plants.

16. *Superintendence of transportation.*—Wages of division superintendents, their assistants and aids, road officers, inspectors, and others employed in superintending transportation.

17. *Wages of conductors engaged in operating revenue cars.*

18. *Wages of motormen engaged in operating revenue cars.*

19. *Wages of other car service employees.*—Wages of starters, transfer agents, switch tenders, trolley men, trail-car couplers, and other car service employees.

20. *Wages of car house employees.*—Wages of car house foremen, watchmen, car placers, car shifters, car and motor inspectors, car cleaners, lamp and headlight tenders, car oilers, car stove firemen, trolley oilers, and other car house employees not engaged in making repairs or renewals.

The cost of shifting cars for the purpose of repairs or renewals should be charged to account No. 6 or 7.

21. *Car service supplies.*—All expenditures for lubricants and waste for cars and electric equipment of cars, incandescent lamps, oil and other supplies for lighting cars, water and other supplies for cleaning cars, fuel for heating cars, bell and register cord, trolley rope, commutator brushes, tools, and other materials and supplies, except such as are used for repair or renewals of cars or electric equipment of cars.

Following is a list of some of the items chargeable to this account:

Batteries, dry, for electric bells in cars.
Bell cord.
Brooms, for cars.
Brushes, for car washing.
Brushes, for motors.
Buckets, for car washing.
Candles.
Chamois skins.
Chimneys, for headlights.
Coal hods, for cars.
Dusters.
Fuel, for cars.
Fuses.
Hose, for car washing.
Illuminating oil.
Incandescent lamps.
Kindling.
Lampwicks.
Lubricants.
Matches.
Mops.
Oil cans.
Pokers.
Polish.
Rags.
Register cord.
Shakers.
Shovels.
Soap.
Sponges.
Stove blacking.
Tools.
Trolley rope.
Waste.
Water, for car washing.

22. *Miscellaneous car service expenses.*—Expenditures for secret inspection, transfers and tickets, conductors' books, punches, portable registers, tools for motormen, employees' badges and uniforms; cost of getting derailed cars on track and removing obstructions and wreckage; miscellaneous expenses of car houses, including fuel, light, water (except water used for car washing), and ice, and all other car service expenses not otherwise provided for.

Water used for car washing should be charged to account No. 21.

Following is a list of some of the items chargeable to this account:

Badges, for employees.
Buckets, for car houses.
Brooms, for car houses.
Conductors' books.
Conductors' fare boxes.
Conductors' punches.
Fire buckets.
Fire extinguishers.
Fuel, for car houses.
Hose, for car houses.
Ice, for ice water.
Light (lanterns and fixtures, oil, lampwicks, torches, candles, incandescent lamps, arc light globes and carbons).
Portable registers.
Secret inspection expenses.
Sprinkling cans.
Tickets.
Tools.
Tools, for motormen.
Transfers.
Uniforms.
Water (except water for car washing).
Wrecking expenses.

23. *Cleaning and sanding track.*—All expenditures for cleaning, erasing, watering, sprinkling, and removing dirt from track, sanding track, including wages of men engaged in the work, cost of sand and of hauling, drying, and distributing same, cost of track brooms and other tools, curve grease, water for sprinkling and watering track, and all other supplies and expenses incident to the work.

The cost of feed and keep of horses used in connection with this work should be charged to account No. 30.

The cost of repairs and renewals of harness and wagons, water, sprinkling, and sand cars used in connection with this work should be charged to account No. 8.

This account should not include cost of sprinkling rendered necessary by repairs or construction of track or paving.

The cost of sprinkling street (except tracks) in front of or adjacent to company's property should be charged to account No. 32.

Following is a list of some of the items chargeable to this account:

Curve grease.
Fuel for sand drier.
Sand.
Sand drier and parts.
Shovels.
Track brooms.
Track brushes.
Water.

24. *Removal of snow and ice.*—All expenditures for removal of snow and ice from tracks, whether done by the company or otherwise, including labor, material, tools, and expenses, cost of salt and of delivering of same in car houses or bins, and the wages of men engaged in salting track and operating snowplows, sweepers, scrapers, etc.

The cost of feed and keep of horses used in connection with this work should be charged to account No. 30.

The cost of repairs and renewals of harness, wagons, salt cars, snowplows, sweepers, scrapers, and miscellaneous snow equipment used in connection with this work should be charged to account No. 8.

25. *Salaries of general officers.*—Salaries of president, vice president, secretary, treasurer, auditor, general manager, assistant general manager, chief engineer, general superintendent, purchasing agent, and all other officers whose jurisdiction extends over the entire system.

26. *Salaries of clerks.*—The salaries of bookkeepers, cashiers, receivers, paymasters, stenographers, clerks employed in counting cash, tickets, and transfers, and all other clerks employed in the general office or elsewhere.

27. *Printing and stationery.*—Expenditures for printing, stationery, and stationery supplies, except as hereinafter provided.

The cost of printing tickets and transfers should be charged to account No. 22.

The cost of printing briefs and other legal papers should be charged to account No. 34 or 35.

The cost of printing signs, posters, and other advertising matter should be charged to account No. 31.

Following is a list of some of the items chargeable to this account:

Arm rests.
Binders.
Blanks.
Blank books.
Blotters.
Blotting paper.
Carbon paper.
Coin bags.
Copy (impression) books.
Copying brushes.
Dating stamps.
Envelopes.
Eyelets.
Eyelet punches.
Erasers.
Hektographs.
Indexes.
Ink.
Inkstands.
Ink erasers.
Letterpresses.
Mechanical calculators.
Mimeographs.
Money tags.
Money wrappers.
Mucilage and brushes.
Numbering stamps.
Oil paper.
Paper (all kinds).
Paper baskets.
Paper clips.
Paper cutters.
Paper fasteners.
Paper files.
Paper weights.
Pencils.
Pencil erasers.
Pens.
Penholders.
Penracks.
Pins.
Printing (except printing charged to accounts Nos. 22, 31, 34, 35).
Rubber bands.
Rubber stamps.
Rulers.
Scrapbooks.
Sealing wax.
Seals.
Shears.
Shipping tags.
Shipping tickets.
Shorthand books.
Sponges.
Sponge cups.
Tissue (impression) paper.
Typewriters.
Typewriter supplies.
Twine.
Wastebaskets.
Wrapping paper.

28. *Miscellaneous office expenses.*—The cost of office supplies, repairs and renewals of office furniture, wages of janitors, porters, and messengers, and all other office expenses.

The cost of printing, stationery, and stationery supplies should be charged to account No. 27, except as otherwise provided.

Following is a list of some of the items chargeable to this account:

Brooms.
Brushes.
Buckets.
Chamois skins.
Dusters.
Fuel.
Ice.
Internal revenue stamps.
Light.
Maps.
Newspapers.
Periodicals.
Postage.
Soap.
Sponges.
Sprinkling cans.
Towels.
Towel service.
Water.

29. *Storeroom expenses.*—Salaries and expenses in connection with storerooms, including cost of sending material and supplies from general storeroom to branch storerooms, and the collecting of scrap material.

30. *Stable expenses.*—The cost of feed, keep, and shoeing of horses, and all other expenses.

This account should include the stable expenses of all horses, regardless of where they are used.

Replacing horses lost by death or worn out in service, depreciation in value of horses, and repairs and renewals of harness and vehicles should be charged to account No. 8.

Following is a list of some of the items chargeable to this account:

Bedding.
Blankets.
Brooms.
Brushes.
Buckets.
Chamois skins.
Currycombs.
Dusters.
Feed.
Fire buckets.
Fire extinguishers.
Fuel.
Horseshoers, wages of.
Horseshoeing supplies.
Horseshoeing (by contract).
Hose.
Hostlers, wages of.
Ice.
Light.
Medicine.
Salt.
Sponges.
Sprinkling cans.
Stablemen, wages of.
Veterinarian (salary or fees).
Water.

31. *Advertising and attractions.*—The cost of advertising of every description, including printing handbills, dodgers, posters, folders, etc., net expense of music, parks, park properties and resorts (after deducting all income from admittance fees, sale of privileges, etc.), and all donations made and other expenses incurred for the purpose of attracting travel.

32. *Miscellaneous general expenses.*—The cost of public telephone service, maintaining and operating private telephone systems, telegrams, subscriptions, and donations (except those provided for in account No. 31), traveling expenses of general officers and others connected with general office, and contingent expenses connected with the general management not otherwise provided for.

33. *Damages.*—Expenditures on account of property damaged and persons killed or injured, salaries and expenses of claim agents, investigators, adjusters, and others engaged in the investigation of accidents and adjustment of claims, salaries, fees and expenses of surgeons and doctors, nursing, hospital attendance, medical and surgical supplies, fees and expenses of coroners and undertakers, fees of witnesses and others, except lawyers' fees and court costs and expenses.

Following is a list of some of the items chargeable to this account:

Accident insurance premiums.
Adjusters' expenses.
Adjusters' salaries.
Claim agents' expenses.
Claim agents' salaries.
Coroners' fees and expenses.
Damage claims for ejectment from cars.
Damage claim for electrolysis.
Damage claims for horses killed or injured.
Damage claims for persons killed or injured.
Damage claims for property damaged.
Damage claims for wagons or vehicles damaged.
Doctors' expenses.
Doctors' fees or salaries.
Funeral expenses.
Hospital expenses.
Investigators' expenses.
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34. *Legal expenses in connection with damages.*—All legal expenses incurred in connection with the defense or settlement of damage claims.

The compensation of the general solicitor or counsel and other attorneys engaged partly in the defense and settlement of damage suits and partly in other legal work should be apportioned between this account and account No. 35.

The term "legal expense" should be understood to include the salary of general solicitor or counsel, salaries, fees, and expenses of attorneys, fees of court stenographers, unless included in court costs, cost of law books, printing of briefs, court records, and other papers, court costs, expenses connected with taking depositions, and all other court expenses.

35. *Other legal expenses.*—All legal expenses except those incurred in connection with the defense or settlement of damage claims.

The compensation of the general solicitor or counsel, and other attorneys engaged partly in the defense and settlement of damage

suits and partly in other legal work should be apportioned between this account and account No. 34.

36. *Rent of land and buildings.*—All rents paid for land and buildings used in the operation of the road.

37. *Rent of tracks and terminals.*—All rents paid for tracks and terminals, bridge rentals, and tolls. The word "terminals" is not meant to refer to depots, car houses, or other buildings at the termini of the road. Rents for these should be charged to account No. 36.

38. *Insurance.*—The cost of fire and boiler insurance.

*Wages, etc.*—Wages, supplies, and expenses incidental to the generation of current for sale, not included in any other of the above items. Amounts are to be reported for railway companies that sell electric current for light or power. Include all expenditures incident to the generation and sale of electric current and which have not been included in the answer to any of the other inquiries.

### Inquiry 33.—Income Account.

Give only the actual cash received and disbursed during the year. Do not include bookkeeping items.

*Chartered cars.*—It is a practice on many street railways to hire out cars for special travel purposes. These are usually known as "chartered" cars, a definition which includes parlor cars, observation cars, theater cars, etc. For all of this class of work it is the custom to make a special and separate rate, and the roads doing this business should have no difficulty in giving the receipts from it.

*Freight, mail, or express.*—Of late years, street railways, and particularly suburban electric lines, have taken up the carriage of freight and express. Provision is made separately for receipts from these items, but it is possible they may be obtainable only as a lump sum, although it is desirable to separate them.

*Miscellaneous income.*—This item must include all amounts received from sources other than those enumerated, such as income from advertising, pleasure resorts, interest on deposits, from securities owned, leased lines, etc. The total must be the gross income of the company for the year.

"Miscellaneous taxes" include special taxes, such as car licenses, special taxes for police service at street crossings, but in such cases a note must be made on the schedule describing the tax or license.

### Inquiry 34.—Balance Sheet.

This condensed statement must balance and show the financial condition of the company on June 30, 1902, or the last day of the year for which the report is made. Any large items which would come under the head of "Sundries" should be stated specifically.



### Inquiries 35–36.—Capital Stock and Funded Debt.

Account for the entire amount of stock and bonds issued. Give full amount of dividends paid during the year. In some cases companies have been reorganized or consolidated and the new company has issued stock, the new stock being accepted by the holders of the original stock which was surrendered to the new company. The new company may also issue bonds and assume the debt represented by the bonds of the original companies, which may or may not be retired. In such cases there may be no cash realized on either the stock or bonds of the new company, but the amount of stock and bonds issued by the new company and also the stock and bonds of the original company outstanding must be given, and the agent should attach a memorandum to the schedule, giving a full explanation of the issues of both stock and bonds. The amounts of the old and new companies should be given separately.

### Inquiry 37.—Employees, Salaries, Wages, etc.

The salaries and wages reported here will also be included in the amounts reported for the different items, under Inquiry 32, "Operating Expenses," but this statement is required in order to obtain the number and wages for each class of employees. Account for all persons employed by the company, both in the management and in the operation of the road. Give the number of officers who receive salaries (not the number of stockholders) and the gross amount of their salaries. Report separately the number and wages of conductors, motormen, and other classes of employees specified. The salaries and wages should include board or rent furnished as part compensation. The average number employed during the year, is the number that would have continuous employment for the twelve months. There should be no difficulty in securing this information for the road of ordinary size, but it may be that the large companies keep an itemized pay roll, the total only being carried forward from each week or month. In such cases it will be necessary to either add the pay roll of each week or month, for each class of employees, or compute the aggregate for each class, using a pay roll for a representative week or month as the base. Results obtained by the latter method will be accepted.

### Inquiry 38.—Number of Employees at Specified Daily Rates of Pay.

This inquiry is designed to ascertain the number of employees for each of the 16 classes enumerated that receive daily rates of pay specified. If there are other daily rates enumerate them and give the number employed at each; also give the hour rates for overtime for each of the 16 classes.

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